

ADDRESSING MULTINATIONAL CORPORATIONS' AGGRESSIVE MARKETING
OF COMMERCIAL FORMULA IN INDONESIA AND THE CESSATION OF
BREASTFEEDING THROUGH THE DESIGN AND EVALUATION OF A
COUNTER-MARKETING CONTINUING EDUCATION MODULE

by

Irma Hidayana

Dissertation Committee:

Professor Barbara C. Wallace, Sponsor
Professor Robert E. Fullilove

Approved by the Committee on the Degree of Doctor of Education

Date 22 May 2019

Submitted in partial fulfillment of the
requirements for the Degree of Doctor of Education in
Teachers College, Columbia University

2019

ABSTRACT

ADDRESSING MULTINATIONAL CORPORATIONS' AGGRESSIVE MARKETING OF COMMERCIAL FORMULA IN INDONESIA AND THE CESSATION OF BREASTFEEDING THROUGH THE DESIGN AND EVALUATION OF A COUNTER-MARKETING CONTINUING EDUCATION MODULE

Irma Hidayana

The purpose of this study was to address the aggressive marketing of commercial formula and breastfeeding cessation in Indonesia using an evaluation of a counter-marketing continuing education module. Using a convenience sample (N = 99) of breastfeeding educators and/or counselors, paired t-tests showed a significant increase in participants' knowledge about counter-marketing after they participated in the training. Findings also showed significant increases post-training for stage of changes, self-efficacy, knowledge, and motivation to perform four key talking behaviors: i.e., involving talking to new and pregnant mothers about corporations' inappropriate and aggressive marketing of formula, and the risks of becoming dependent on expensive formula and losing the ability to produce their own breast milk. These findings suggested that

exposure to the counter-marketing continuing education training served as a brief intervention associated with significant improvements in level of knowledge about counter-marketing among participants and in stage of change self-efficacy, knowledge, and motivation for performing key behaviors of interest.

Backward-stepwise regression revealed that *higher level of motivation for taking an active role in the proposed campaign* (i.e., *A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation*) was significantly predicted by: (1) *higher pre-training self-efficacy for talking to expectant and new mothers about the reasons to breastfeed their infant* ($\beta = .327$, SEB = .118, $p = .007$); (2) *lower pre-training knowledge for talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula* ($\beta = -.270$, SEB = .092, $p = .004$); and, (3) *higher level of knowledge for taking an active role in the proposed campaign* ($\beta = .392$, SEB = .083, $p = .000$).

Participants rated the training as very good (74.7%, $n = 74$). Qualitative data showed that the training provided new knowledge and a new approach in addressing aggressive formula marketing by corporations. Further, participants found that the training has made them more confident and motivated to work with mothers and the community to advocate and educate about negative impacts from commercial formula.

© Copyright Irma Hidayana 2019

All Rights Reserved

ACKNOWLEDGEMENTS

I am very grateful to my dissertation sponsor, Dr. Barbara Wallace. There are not enough words to express my gratitude and respect for your guidance over the years.

Thank you for your endless support along the way.

I would also like to thank my professors and committee who assisted me in this journey, including Professors Bob Fullilove, Sonali Rajan, and Ye (Angel) Wang.

I am indebted to my many colleagues in Indonesian Breastfeeding Mothers' Association, Indonesia Jentera Law School, the Indonesia Mothers and Children Advocacy group, and the Indonesian Breastfeeding Counselor's Association for your continued support and trust and for making this study possible. Special thanks also to all of the village midwives, nutritionists, and health (Posyandu) cadres who took time and travelled a long the way to share their perspectives and experiences for this study.

And above all, I would like to thank my family: my mother and mother in law for your endless *duas* and for your spiritual support and encouragement. I would also like to thank my extended family—Efek Rumah Kaca and Kios Ojo Keos, for all your patience and continuous support of my professional development. Lastly, a special thanks to my husband and loving son. I humbly share this accomplishment with you both and my extended family for truly I would not be here without you all.

I.H.

TABLE OF CONTENTS

	Page
Chapter I – INTRODUCTION	1
The Importance of Breastfeeding	2
The Cost of Suboptimal Breastfeeding	4
Marketing of Commercial Formula	5
Potential Role of Counter-Marketing	10
Statement of the Problem	11
Purpose and Objectives	13
Objectives of the Continuing Education Module	13
Research Questions and Survey Parts	16
Quantitative Portion of the Study	16
Qualitative Portion of the Study	18
Rationale for the Study	19
Delimitations	24
Limitations	24
Definition of Key Terms	25
Abbreviations	28
Conclusion	29
Chapter II – REVIEW OF LITERATURE	30
Global Sales of Commercial Formula	30
The WHO International Code of Marketing of Breast-milk Substitutes	32
Global Implementation of the Code of Marketing of Breast-milk Substitutes	36
Global Pattern of Pervasive Marketing of Commercial Formula	41
Insufficient Evidence for Marketing Claims for Commercial Formula	49
Commercial Formula Marketing and Negative Effects on Breastfeeding	54
Maternal Perceptions of Commercial Formula Advertising	58
Focus on Indonesia: Breastfeeding Rates and National Policies on Commercial Formula Marketing	64
Use of Counter-Marketing to Address Public Health Problems	67
Counter-Marketing for Smoking Reduction Campaigns	70
Theories Guiding the Research	74
Social Cognitive Theory- Self-Efficacy	74
The Transtheoretical Model: Stages of Change	75
Motivational Interviewing	77
Health Communication	79
Conclusion	80

Chapter III – METHODS	82
Overview of Study Design and Procedures	82
IRB Approval	83
The Counter-marketing Education Training	
Manual Development	83
Subject Recruitment	85
Inclusion/Exclusion Criteria	86
Incentives for Participation	86
Other Study Procedures	87
Confidentiality Procedures: Paper Survey	88
The Translation Process	88
Description of Study Participants	89
Description of the Research Instrumentation	90
Part I. Basic Demographics (BD-7)	90
Part II. Before-Training: Rating of My Knowledge	
(BT-RMK-5).....	90
Part III. Before-Training: Stage of Change, Self-Efficacy,	
Knowledge, and Motivation Levels (BT-SOC-SE-K-M4).....	91
Scoring for the Before-Training Stage of	
Change (BT-SOC-4)	92
Scoring for the Before-Training Knowledge (BT-K-4).....	92
Scoring for the Before-Training Motivation (BT-SE-4).....	94
Part IV. After-Training: Rating of My Knowledge (AT-MK-1).....	94
Part V. After-Training: Stage of Change, Self-Efficacy,	
Knowledge, and Motivation Levels (AT-SOC-SE-K-M-4).....	94
Part VI. Self-Rating for Participating in	
the Campaign—Stage of Change, Self-Efficacy, Knowledge,	
and Motivation Levels (SR-PC-SOC-SE-K-M-4).....	95
Scoring for the Self-Rating for Participating in	
the Campaign—Stage of Change (SR-PC-SOC-1).....	95
Scoring for the Self-Rating for Participating in	
the Campaign—Self-Efficacy (SR-PC-SE-1).....	95
Scoring for the Self-Rating for Participating in	
the Campaign—Knowledge (SR-PC-K-1)	95
Scoring for the Self-Rating for Participating in	
the Campaign—Motivation (SR-PC-M-1)	96
Part VII. Dose of Exposure and Rating the	
Continuing Education Module (DOE-1; and, RTM-1)	96
Scoring for Dose of Exposure (DE-1)	96
Scoring for Training Rating (TR-1).	96
Scoring for Training Manual Rating (TM-R-1).	97
Scoring for Training Leader Rating (TL-R-1)	97
Part VIII Open Sharing (OS-4).....	97
Treatment of the Data	98
Data Management	98
Data Analysis Plan	98

Additional Details on the Qualitative Data Analysis Plan	101
Conclusion	102
Chapter IV – RESULTS	103
Data Analysis Results by Study Question.....	103
Results for Research Question #1	103
Results for Research Question #2.....	105
Results for Research Question #3	106
Pre-training: Stages of Change Scale for	
Four Talking Behaviors (BT-SOC-4)	106
Before training: Self-Efficacy for Four Talking	
Behaviors (BT-SE-4).....	110
Before-Training: Knowledge for Four Talking	
Behaviors (BT-K-4)	112
Before-Training: Motivation for Four Talking	
Behaviors (BT-M-4)	115
Results for Research Question #4	119
Results for Research Question #5	119
Post-Training: Stages of Change Scale for Four	
Talking Behaviors (AT-SOC-4)	119
After Training: Self-Efficacy for Four	
Talking Behaviors (AT-SE-4)	122
After Training: Knowledge for Four	
Talking Behaviors (AT-K-4)	125
After Training: Motivation for Four	
Talking Behaviors (AT-M-4)	128
Results for Research Question #6	131
Stage of Change Scale for Taking an Active Role	
in the Campaign.....	132
Self-Efficacy Scale for Taking an Active Role	
in the Campaign.....	132
Knowledge for Taking an Active Role in	
the Campaign.....	132
Results for Research Question #7	135
Results for Research Question #8	137
Stages of Change Paired T-Tests	137
Self-Efficacy Paired T-Test	141
Knowledge Paired T-Test	144
Motivation Paired T-Test.....	147
Results for Research Question #9	150
Results for Research Question #10	152
The outcome variable of interest.....	152
The 12 Independent Variables	152
The Backward Stepwise Regression Analyses	153
Results for Research Question #11.....	155
Category I - The Strengths of the Training	

—Emergent Themes	155
Theme – 1: Provides New Knowledge and A New Approach.....	156
Theme—2: A great/new training.....	156
Theme – 3: Provides scientific evidence, references, data, and facts.....	157
Category II - The Weaknesses of the Training	
—Emergent Themes	157
Theme – 1: Time - too short	157
Category III – How the Training Could be Improved	
—Emergent Theme	158
How could it be improved- Emergent Themes.....	158
Theme – 1: Adding more time	158
Category IV – What Was the Impact of the Training on You?	
—Emergent Themes	159
Theme – 1: Being confident and motivated	159
Theme – 2: Counter-marketing savvy and campaign enthusiasts.....	160
Category V – What Other Recommendations/ Comments	
Do You Have to Share?—Emergent Themes	161
Theme – 1: Anticipating the next step regarding the campaign.....	161
Theme – 2: Viewing another training as needed...	161
Theme – 3: Devise campaign implementation plan.....	162
Conclusion	163

Chapter V – SUMMARY, DISCUSSION, IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSION	164
Summary of Research Study	164
Summary of Statement of the Problem	170
Summary of the Purpose and Objectives	170
Summary of the Research Questions	172
Quantitative Portion of the Study	172
Qualitative Portion of the Study	174
Summary of the Literature Review.....	174
Summary of the Research Sample and Procedures	179
Summary of the Research Instrumentation	180
Summary of Data Management and Data Analysis	181
Summary and Discussion of Results by Research Question	181
Summary and Discussion for Research Question #1	181
Summary #1	181
Discussion #1	182
Summary and Discussion for Research Question #2 (Part II: BT-RMK-5)	182

Summary #2	183
Discussion # 2.....	183
Summary and Discussion for Research Question #3 (Part III: BT-SOC-SE-K-M-4)	183
Summary #3	183
Discussion #3	184
Summary and Discussion for Research Question #4 (Part IV: AT-RMK-1)	186
Summary # 4.....	186
Discussion #4	187
Summary and Discussion for Research Question #5 (Part V: AT-SOC-SE-K-M-4)	187
Summary #5	187
Discussion #5	188
Summary and Discussion for Research Question #6 (Part VI: SR-PC-SOC-SE-K-M-L-1)	190
Summary #6.....	190
Discussion #6.....	191
Summary and Discussion for Research Question #7 (Part VII: DOE-1; and, RTM-1)	191
Summary #7	191
Discussion #7.....	191
Summary and Discussion for Research Question #8	192
Summary #8	192
Discussion #8	194
Summary and Discussion for Research Question #9	195
Summary #9	195
Discussion #9.....	196
Summary and Discussion for Research Question #10	196
Summary #10.....	196
Discussion #10.....	197
Summary and Discussion for Research question #11	198
Summary #11	198
Discussion #11	199
Implications and Recommendations.....	200
Recommendations for Future Research.....	205
Limitations of the Study.	207
Conclusion	207
REFERENCES	211
APPENDICES	
Appendix A: IRB Approval Letter	218
Appendix B: Recruiting Flyer Message	219
Appendix C: Recruiting E-mail Message	220
Appendix D: Informed Consent	222

Appendix E: Screening Survey.....	227
Appendix F: Study Survey A.....	228
Appendix G: Study Survey B... ..	233
Appendix H: The Training Materials Links.....	238
Appendix I: About the Local Sponsors of the Study	239

LIST OF TABLES

Table	Page
1	Background Demographics (BD-7) (N = 99) 104
2	Pre-Training: Rating of my Counter-marketing and Campaign Knowledge (BT-RMK-1) (N = 99) 106
3	Pre-Training: Global Stage of Change for Four Talking Behaviors 107
4	Pre-Training: Stage of Change for Four Talking Behaviors (BT-SOC-4) 108
5	Pre-Training: Global Self-Efficacy for Four Talking Behaviors 110
6	Pre-Training: Self-efficacy for Four Talking Behaviors (BT-SE-4) 111
7	Pre-Training: Global Knowledge for Four Talking Behaviors 113
8	Pre -Training: Knowledge for Talking About Four Behaviors (BT-K-4) 114
9	Pre-Training: Global Motivation for Four Talking Behaviors 116
10	Pre-Training: Motivation for Four Behaviors (BT-M-4) 117
11	Post-Training: Rating of my Counter-marketing and Campaign Knowledge (AT-RMK-1) (N = 99) 119
12	Post-Training: Global Stage of Change for Four Talking Behaviors. 120
13	Post-Training: Stage of Change for Four Talking Behaviors (AT-SOC-4) 121
14	Post-Training: Global Self-Efficacy for Four Talking Behaviors 123
15	Post-Training: Self-efficacy for Four Talking Behaviors (AT-SE-4)..... 124
16	Post-Training: Global Knowledge for Four Talking Behaviors 126
17	Post-Training: Knowledge for Four Talking Behaviors (AT-K-4)..... 127

18	Post-Training: Global Motivation for Four Talking Behaviors	129
19	Post-Training: Motivation for Four Talking Behaviors (AT-M-4).....	130
20	Stage of Change, Self-Efficacy, Knowledge, and Motivation for Taking An Active Role in the Campaign.....	133
21	Dose of Exposure to Training	135
22.	Rating the Training	135
23	Rating the Training Materials	136
24	Rating the Trainer	136
25	Paired T-Tests for Stages of Change: Pre- versus Post Comparison	137
26	Paired Sample T-Tests for Stages of Change.....	140
27	Paired T-Test for Self-efficacy: Pre- versus Post Comparison	141
28	Paired Sample T-Tests for Self-Efficacy	143
29	Paired T-test for Knowledge: Pre- versus Post Comparison	144
30	Paired Sample T-tests for Knowledge	146
31	Paired T-tests for Motivation: Pre- versus Post Comparison.....	147
32	Paired t-tests for Motivation	149
33	Correlations Between Selected Variables and the Four Global Scores ...	152
34	Backwards Stepwise Regression Analysis Predicting Higher Level of Motivation (i.e. for Taking an Active Role in the Proposed Campaign)	155
35	Five Categories and Emergent Themes Arising from Qualitative Data (N = 78)	162

Chapter I

INTRODUCTION

The World Health Assembly (WHA) 69.9 called for manufactures to end inappropriate, unethical, and aggressive marketing practices of all commercial formulas and complementary foods for infants and young children (The World Health Organization [WHO], 2016). The WHA 69.9 was issued subsequent to the International Code of Marketing of Breast-milk Substitutes (the Code), a global standard that regulates the marketing of breast milk substitutes, feeding bottles, and teats. Thus, this resolution aimed to protect continued and optimal breastfeeding practices from any forms of formula marketing that “would displace human milk” in the diet of infants and young children (Theurich, 2018, p. 273).

Further, the WHO, the United Nations International Children's Fund (UNICEF), and International Baby Food Action Network (2016) suggested that inappropriate and unethical marketing of commercial formula and violations of the Code are prevalent globally. Multinational corporations of the baby food industry have increased marketing of commercial formula for children under two years of age, particularly in emerging economies where potential markets have grown due to large populations of children (Rollins et al., 2016). Commercial formula marketing impacts breastfeeding behaviors via multiple channels, including public advertising and “marketing to and through health facilities and providers, consumers, and policy makers” (Piwoz & Huffman, 2015, p. 381). Such marketing practices undermine

breastfeeding confidence, and importantly, affect implementation of policies and regulations (p. 381).

The Importance of Breastfeeding

Breastfeeding has been found to provide many benefits to mothers and children (Victora et al., 2016). A systematic review and meta-analysis of 28 studies demonstrated that breastfeeding protects a child from infections and misalignment of teeth, increases intelligence, and reduces the risks of becoming overweight and developing diabetes. These protective effects from overweight and diabetes likely persist until later in life (p. 487). Optimal breastfeeding practices have also found to prevent “child morbidity due to diarrhoea, respiratory infections, and otitis media”—i.e. ear aches, ear infections, and inflammatory diseases of the middle ear (p. 487). Breastfeeding could prevent 72% of hospital admissions from diarrhea and 57% from respiratory infections (p. 479). Moreover, in higher and lower income countries, breastfeeding provides major protection for a child from sudden infant death syndrome (Victora et al., 2016).

In mothers, breastfeeding is protective against breast cancer, and “might reduce a woman’s risk of diabetes and ovarian cancer” (Victora et al., 2016, p. 476). When comparing women who breastfeed and women who do not, it has been estimated that breastfeeding could prevent 19,464 annual breast cancer deaths. Additionally, longer periods of breastfeeding are associated with a 30% reduction of ovarian cancer and increased birth spacing (Victora et al., 2016, p. 485).

The risk of increased morbidity and mortality in the first years of life due to suboptimal breastfeeding is considerably high (Khan, Vesel, Bahl & Martines, 2015; Black et al., 2013). The absence of early initiation of breastfeeding is a major contributor to childhood mortality, particularly in low-income and middle-income countries (Black et al., 2013). Lack of exclusive breastfeeding not only contributes to a higher risk of mortality, but also increases the risk of “infection-related deaths in the first month of life” (Khan et al., 2015, p. 468). In 2011, suboptimal breastfeeding was associated with 804,000 deaths in children under age five, or 11.6% of all deaths (Black et al., 2013, p. 15). In 2015, this number was estimated at 823,000 (Victora et al., 2016, p. 485).

Although breastfeeding can increase the rate of HIV transmission in certain circumstances, formula feeding produces malnutrition during the first months of life, and thus increases mortality (Alvarez-Uria, Midde, Pakam, Bachu, & Naik, 2012). In countries with high HIV prevalence, where diarrhea, pneumonia, and under-nutrition are common causes of infant and child mortality, breastfeeding reduces the risks of morbidity and mortality (WHO et al., 2016). Consequently, as a global public health recommendation, the WHO and UNICEF recommended optimal breastfeeding practices, where babies should be breastfed within the first hour of birth, be exclusively breastfed for the first six months, and continued to be breastfed for an additional 18 months or longer, along with adequate complementary foods (WHO, 2008, pp. 7-8).

The Cost of Suboptimal Breastfeeding

Suboptimal breastfeeding is defined as breastfeeding that falls short of recommendations that mothers and infants exclusively breastfeed for the first six months of life, with continued breastfeeding for at least 12 months (American Academy of Pediatrics, 2012). In 2014, the cost of suboptimal breastfeeding in the United States was “\$3.0 billion for total medical costs, \$1.3 billion for non-medical costs, and \$14.2 billion for premature death costs” (Bartick et al., 2017, p. 7). Suboptimal breastfeeding has been associated with an annual excess of “3,340 premature maternal and child deaths,” of which 78% are maternal deaths due to myocardial infarction, breast cancer, and diabetes (p. 7). Also, excess pediatric deaths are due to acute lymphoblastic leukemia, lower respiratory tract infections, necrotizing enterocolitis (i.e., a portion of the colon dies in newborns), and Sudden Infant Death Syndrome (Bartick et al., 2017).

Meanwhile, Colchero, Contreras-Loya, Lopez-Gatell, and de Cosío (2015) found that in Mexico, suboptimal breastfeeding practices in one-year-old infants were associated with higher direct health care costs from diseases, “lost future earnings due to premature death,” and “the costs of purchasing infant formula” (p. 581-582). In 2012, the total pediatric costs of suboptimal breastfeeding was in a “range from \$745.5 million to \$2.4 billion,” where the costs of “infant formula accounted for 11–38% of the total costs” (p. 582). The total amount lost due to not breastfeeding was “between \$3.7 billion and \$11.6 billion between 2006 and 2012,” given the decrease in breastfeeding prevalence (Colchero et al., 2015, p. 582).

In Southeast Asia, Walters et al. (2016) found that more than 12,400 preventable infant and maternal deaths per year in Cambodia, Indonesia, Laos, Myanmar, Thailand, Timor Leste, and Vietnam could be attributed to inadequate breastfeeding (p. 1). Indonesia accounted for 5,377 or “nearly half of the region’s attributable deaths,” followed by Vietnam (n = 2,011) and Myanmar (n = 1,636) (p. 7). The combined total of estimated economic loss due to suboptimal breastfeeding is “US\$1.63 billion per year” across the seven countries (p. 7). Of note, Indonesia lost the most (US\$1.34 billion). The overall health system cost attributed to suboptimal breastfeeding practices in the seven countries was US\$293.5 million. In addition to the health care costs, families have to pay ‘indirect health costs’ “associated with seeking treatment for children with diarrhoea and pneumonia” (Walters et al., 2016, p. 7).

Siregar, Pitriyan, and Walters (2018) estimated that the total annual healthcare cost of suboptimal breastfeeding in Indonesia to be US\$119 million. Of this, 80% went to treating diarrhea, with the rest was used for treating respiratory diseases among children under the age of two (Siregar et al., 2018).

Marketing of Commercial Formula

Unlike other commodities, “baby milk formula seems to be resilient to market downturns” (Rollins et al., 2016, p. 495). In 2009, for example, when the global growth of real gross domestic product turned negative, commercial formula sales still constantly grew by 8% annually (p. 495). In 2014, the global sales of all types of formula were

estimated at approximately US\$44.8 billion; the market value is projected to reach \$70.6 billion by 2019 (Rollins et al., 2016).

In Indonesia, the value of commercial formula milk sales nationally was nearly US\$240 million in 2014, compared to US\$110 million in Vietnam (Rollins et al., 2016). However, in high-income countries that have high-income markets, sales of infant formula for infants aged less than six months are static because of “market maturity, decreasing birth rates, and legislation on advertising and sales” (p. 496). The biggest difference in market sales between high-income and middle-income countries is “due to large and increasing sales of follow-on and toddler milks” (Rollins et al., 2016, p. 496).

From 2009 to 2014, the market size of commercial formula in Indonesia was also expanding with the market growth value size of 96% (Vinje et al., 2017). More specifically, some growth was for “standard and follow-on milk formula” (p. 1338). The numbers of commercial formula advertisements were also high because “Indonesia had the largest number of newborns,” therefore there were notable numbers of advertisements both “on television and in print” (p. 1340).

Allers (2017) estimated the current global sales of all types of commercial formula to be at \$11 billion. Compared to adult drugs, commercial formula has a higher profit because its products have a “guaranteed supply of potential users” (p. 46). The market for commercial formula for infants is also replenished every day. On the other hand, big pharmaceutical companies do not have “any incredibly lucrative drugs in the pediatric arena” (p. 46).

Baker et al. (2016) indicated that such big sales of commercial formula has led to a transition in infant and young child feeding patterns, resulting in a significant decline in

breastfeeding. The commercial formula multinational corporations' marketing strategies have been raised as a growing concern, as they interfere with breastfeeding. For example, this occurs by multinational corporations' marketing strategies using unsubstantiated health claims in their advertisements and portraying themselves as health ambassadors in "breastfeeding and infant nutrition" as their bargain to increase sales (Ching, 2017, p. 324). These marketing practices also contribute to "obesity and non-communicable diseases," and create "a dependency on commercial products" (WHO, 2017, p. 2). The corporations also sponsor health professionals for continuing education and medical conferences—while also enlisting them as potential health ambassadors pushing breastfeeding (Ching, 2017). According to the WHA 69.9 resolution, such sponsoring practices are considered as a type of marketing (WHO, 2016).

The marketing of commercial formula and other complementary foods have adverse effects on the rate and duration of breastfeeding (Cattaneo et al., 2014). In the United States, a notably high number of commercial formula advertisements were found during 2007 to 2011 (Basch, Shaffer, Hammond & Rajan, 2013). In particular, commercial formula advertisements targeting infants aged 0-6 months were prevalent during this time period. Although the number of formula advertisements sharply declined in 2008, it significantly increased from 2009 onward (Basch et al., 2013). Toddler formula advertisements also function as advertisements for infant formula as they "bear a brand identifier in common with infant formula" (Berry, Jones & Iverson, 2010, p. 28). This observation supports the contention that toddler formula advertising is intentionally designed to promote the manufacturers' entire line of formula products, including infant and follow-on formulas (Berry et al., 2010).

Smith and Blake (2013) indicated that from 1950 to 2010, formula companies shifted the way they sell products in Australia from marketing to health professionals to marketing directly to mothers. As a result, an increase in the use of formula may lead to “early weaning and reduced exclusivity of breastfeeding and undermine efforts to increase the duration of breastfeeding” (Smith & Blake, 2013, p. 342).

Toddler formula advertisements have commonly claimed that formula strengthens immunity, ensures proper growth and development, improves babies’ brain development, or that formula is equal to breast milk. Nutritional claims such as the product containing omega 3, iron, or probiotics were also commonly found in toddler advertisements (Berry et al., 2012). However, there is a great paucity of clinical evidence to support these health and nutrition claims. Such claims were utilized to encourage parents to purchase certain commercial formulas (Belamarich, Bochner, & Racine, 2016; Hughes, Landa & Sharfstein, 2017). These claims also “mislead consumers by minimizing the differences between infant formula and human milk” (Berry et al., 2012, p. 27).

As a result, these insufficiently supported claims might confuse parents into thinking that “these formulas are equivalent or superior to breastfeeding,” while also resulting in higher “costs for families” (Hughes et al., 2017, p. 105). Moreover, these claims were “effectively communicating health claims for their brands” not only to the mothers, but also to the health professionals (Berry et al., 2011, p. 14).

Sobel et al. (2011) found that exposure to formula advertising messages and/or the receipts of any appeal from health professionals to use formula correlated with the introduction of baby formula. Mothers who recalled an advertising message were two times more likely to feed their children infant formula. Moreover, those who had received

a recommendation to use formula from a doctor were four times as likely to formula-feed their infants (p. 1,447). Furthermore, infants who were given formula were 6.4 times more likely to have mothers who stopped breastfeeding before one year of age (Sobel et al., 2011).

In Indonesia, infant formula and other breast milk substitute samples and gifts are commonly distributed in health facilities (Hidayana, Februhartanty & Parady, 2017). Women who receive samples and gifts are likely to receive advice and information from health professionals to use commercial infant formula to complement breast milk. Health professionals were also found to recommend commercial infant formula “to increase the baby’s weight or nutritional status” (Hidayana et al., 2017, p. 6).

Unethical and aggressive marketing of all types of commercial formula continues to undermine efforts to improve breastfeeding rates (WHO et al., 2016). Efforts to develop comprehensive legislation to eliminate the inappropriate marketing of breast-milk substitutes at the national level are often aborted by corporations. The U.S. 2017 trade and investment agreements with chapters on the reduction of technical barriers to trade, investment, intellectual property rights, and dispute settlements delayed the development of national legislations (p. 41). Also, marketing efforts are “gradually shifting from advertising in retail outlets and through mass media to the use of the internet and social media,” creating even greater challenges in reducing inappropriate marketing (WHO et al., 2016, p. 41).

WHO (2011) suggested that such irresponsible marketing is one of the main drivers for the rapidly growing burden of non-communicable diseases (NCDs) in developing countries. The report indicated a strong association between NCDs and

maternal and child health from the stage of pregnancy through the duration of breastfeeding (WHO, 2011).

Potential Role of Counter-Marketing

The general view of marketing is that it is a task primarily focused on creating and maintaining demand for something, by undertaking efforts to increase demand or sales, such as via advertising, promotions, and personal selling (Kotler, 1973). Kotler (1973) suggested the use of a counter-marketing approach when encountering a product or service that is considered unwholesome from the viewpoint of the public's welfare. Counter-marketing is also known as un-selling. Classic examples of counter-marketing or un-selling have focused on products such as alcohol, cigarettes, and illegal drugs (Kotler, 1973).

Additionally, Palmedo, Dorfman, Garza, Murphy, and Freudenberg (2017) defined counter-marketing as countering the marketing of unhealthy products by using health communications strategies (p. 120). Employing health communications strategies mean using the available scientific evidence “to inform and influence individual and community decisions that enhance health” (U.S. Department of Health and Human Services, [USDHHS], 2002). The purpose of counter-marketing is to reduce the demand for unhealthy products (Palmedo et al., 2017).

The prominent smoking prevention campaign (Truth Campaign), which launched in the United States in 2000, is an example of a national public health campaign

employing counter-marketing strategies (Farrelly, Nonnemaker, Davis & Hussin, 2009). From 2000 to 2004, an estimated 450,000 adolescents were prevented from initiating smoking nationally as a result of the Truth Campaign (Farrelly et al., 2009).

Statement of the Problem

The problem that this study addressed was the aggressive marketing of multinational corporations' commercial formula for infants and young children in Indonesia, and the need for 1) a counter-marketing campaign—*A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation*—and 2) a training designed to empower all those who provide education to mothers on breastfeeding to participate in and promote the campaign. The goal is to prevent breastfeeding cessation by mothers. A counter-marketing approach is vitally needed in Indonesia, given how numerous studies have shown commercial formula to be associated with an increased risk of neonatal morbidity and mortality (Black et al., 2013; Khan et al., 2015; Victoral., 2016). Further, commercial formula is expensive; formula-fed babies are sick more often, thus families of formula-fed babies may spend more on healthcare (Walters et al., 2016). In Indonesia, marketing of commercial infant formula at the hospital is a primary reason for breastfeeding cessation (Flaherman, et al., 2018). Representatives of formula companies “continue to have an influence on breastfeeding in and out of the hospital” (Flaherman, et al., 2018, p. 2692). These practices create demand for commercial infant formula while, in fact, exclusive and optimal breastfeeding should

be fully supported and promoted (Flaherman et al., 2018). Unfortunately, once a woman stops breastfeeding, her milk production ceases, making reversal of her decision to use formula difficult, and resulting in dependency on commercial formula.

Purpose and Objectives

The purpose of this study was to: 1) launch a counter-marketing campaign—*A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation* in Indonesia; and, 2) evaluate a continuing education training module designed to empower breastfeeding educators/counselors to participate in and promote the campaign, specifically by exposing them to counter-marketing and related skills (e.g. brief motivational interviewing [Miller & Rollnick, 2013; Wallace, 2019]) that are codified in a module. The study involved the creation and evaluation of the counter-marketing continuing education module, as well as a training booklet: i.e. *The Training Manual for Peer Educators and Advocates in A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation* (See Appendix H). The module is intended to serve as an important tool in the continuing education for breastfeeding educators/counselors in Indonesia so they may take an active and ongoing role in *A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation* in Indonesia. The module is further intended to identify trainers who will use the booklet to conduct additional trainings in their communities, while preparing educators to engage in advocacy (e.g., media

advocacy, policy change) focused on the aggressive marketing of commercial formula by multinational corporations.

An additional purpose of the study was to identify significant predictors of the **study outcome variable of having post-training a higher level of motivation for taking an active role in the campaign** (i.e. *A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation in Indonesia*).

Objectives of the Continuing Education Module

The objectives of the continuing education module were to ensure that upon the completion of training, specifically, for the behavior of educating new and expectant mothers on these topics, there would be evidence of breastfeeding educators/counselors emerging able to engage in four talking behaviors:

#1 = **talking** to expectant and new mothers **about** the reasons to breastfeed their infant (i.e. exclusive and **optimal breastfeeding**), and all the benefits for their infant;

#2 = **talking** to expectant and new mothers **about corporations'** inappropriate and **aggressive marketing of commercial infant formula** and other breast milk substitutes;

#3 = **talking** to expectant and new mothers **about** how the aggressive **marketing** of commercial infant formula and other breast milk substitutes **includes billboards** with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula; and,

#4 = **talking** to expectant and new mothers **about** the **risk** of becoming **dependent on expensive commercial infant formula**, losing the ability to produce breast milk, and the increased risk of illness and death for their infant.

Key objectives of the continuing education module include participants emerging post-training with: 1-an increase in their countermarketing and campaign knowledge; 2-

an increase in stage of change for engaging in all four talking behaviors (i.e., they enter an action stage of change); 3-an increase in self-efficacy for engaging in all four talking behaviors; 4-an increase in their level of knowledge for engaging in all four talking behaviors; and, 5-an increase in their motivation for engaging in all four talking behaviors.

Of note, others have sought to educate individuals in a manner similar to the current planned training (e.g. Save the Children & Hacienda, 2018), while covering the global challenge. Some of the main points made by Save the Children and Hacienda (2018) are, as follows:

- It is a global public health recommendation that babies should be breastfed within the first hour of birth, should be exclusively breastfed for the first six months of life, and that babies should continue to be breastfed for an additional 18 months or longer, while also receiving adequate complimentary foods (i.e., exclusive and optimal breastfeeding).
- In some countries, infant formula and breast milk substitute samples and gifts are commonly distributed in health facilities—for free—to expectant mothers and new mothers.
- Women who receive infant formula and other breast milk substitute samples and gifts are also likely to receive advice and information from health professionals to use commercial infant formula to complement breast milk.
- Some health professionals have been found to recommend commercial infant formula to increase the baby's weight or nutritional status.
- Women who begin to use commercial infant formula to feed their infant may stop producing their own breast milk; even if they want to return to breastfeeding, their own breast milk production has stopped, leaving them dependent on the use of expensive formula.
- Efforts to develop comprehensive legislation to eliminate the inappropriate marketing of breast-milk substitutes at the national level are often being aborted by multinational corporations.
- The inappropriate, aggressive marketing of commercial infant formula and breast milk substitutes creates demand for commercial infant formula.
- The aggressive marketing of commercial infant formula and breast milk substitutes—for example, in some countries, this includes the use of billboards or television ads, etc. featuring perfect-looking, attractive babies (e.g., with white skin)—contributes to women abandoning exclusive and optimal breastfeeding, or television ad, etc.

- Just as medical doctors used to recommend that patients smoke cigarettes as something beneficial to their health, until tobacco companies were forced to stop spreading misinformation about their highly addictive products that carry the risk of increased morbidity and mortality, today, some health professionals are distributing and recommending formula and breast milk substitutes to mothers. When a doctor or health worker is used to promote a product, such as formula, people think that the claims made in advertisements must be true. The use of people that patients “trust” is a classic marketing strategy to sell products.
- Through such advertising, a mother is made to feel that not using formula means she is not doing the best for her child, making it extremely difficult to not use formula.
- Corporations are succeeding in their strategy to persuade mothers to use formula.
- The six largest multinational corporations manufacturing and advertising formula are Danone, Nestle, Kraft Heinz, Abbott, Mead Johnson, and Friesland/Campina.
- The formula industry has become extremely lucrative for investors, as company stock prices rise.
- The global market for formula was worth \$44.8 billion in 2014, having risen from \$15 billion in 1998, while the market is estimated to increase to \$70 billion by 2019.
- Many countries benefit from having funds with shares in some of the multinational corporations selling breast milk substitutes, while ordinary people are unaware of these investments that support things such as the state pension fund (e.g., Norway).
- While investors in corporations may have expectations (e.g., valuing the lives and health of children), to actually implement the expectations properly requires vigilant citizens and an organized civil society, where society as a whole must take action.
- Large investors with lots of money can force companies to listen and take action to follow expectations, and these large investors have a responsibility to do so.
- A recommended campaign to counter the strategies used by large multinational corporations could use the slogan “poor people tricked into abandoning breastfeeding” in newspapers, the media, and on flyers and brochures.
- A recommended visual image to counter strategies used by large multinational corporations could be a black poison being poured into a baby bottle that is surrounded by trash and pollution.
- Recommended slogans are “children’s health before profit” and “stop aggressive marketing of milk formula.”
- Recommended strategies are to demand that large investment funds with stock in the six largest multinational corporations manufacturing and advertising formula (Danone, Nestle, Kraft Heinz, Abbott, Mead Johnson, and Friesland/Campina) take action and influence these six companies to

put “children’s health before profit” and “stop aggressive marketing of milk formula.”

- There is also a role for nonprofits, NGOs, advocacy, and activism in getting companies to put “children’s health before profit” and “stop aggressive marketing of milk formula.”
- *A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation* has the goal of preventing breastfeeding cessation by mothers.
- A counter-marketing approach is vitally needed, given how numerous studies have shown commercial formula to be associated with an increased risk of neonatal morbidity and mortality; breastfeeding educators/counselors can play a vital role in this approach.
- In addition to a counter-marketing approach, a brief form of motivational interviewing may be used to assist expectant and new mothers in talking about their concerns, experiencing discrepancy between their goals for their child’s healthy development versus the risks of increased morbidity and mortality from using formula, reviewing a menu of options (e.g., use formula versus exclusive optimal breastfeeding), and choosing next steps for the action she will take (e.g., thinking about it and discussing it with family) now and in the near future (e.g., making a decision to avoid the cessation of breastfeeding) (Save the Children & Haciendo, 2018)

Research Questions and Survey Parts

Given a convenience sample of volunteers who are breastfeeding educators and counselors in Indonesia (N = 99) who completed the new 7-hour in-person training module, conducted in Indonesian by the Principal Investigator, the study answered the following research questions:

Quantitative Portion of the Study:

1-What are their demographic characteristics?

Part I: Basic Demographics (BD-7)

2-Before the 7-hour in-person training, what was their self-rating for level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns?

Part II: Before the Training: Rating of my Knowledge (BT-RMK-1)

3-Before the 7-hour in-person training, what were their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [1- *the reasons to breastfeed their infant (i.e., exclusive and optimal breastfeeding), and all the benefits for their infant*; 2- *corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes*; 3- *the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g., with white skin) – so women want to use the formula*; 4- *the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant*)]?

Part III: Before the Training: Stage of Change, Self-Efficacy, Knowledge and Motivation Levels

4-After the 7-hour in-person training, what was their self-rating for level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns?

Part IV: After the Training: Rating of my Knowledge

5-After the 7-hour in-person training, what were their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [1- *the reasons to breastfeed their infant (i.e., exclusive and optimal breastfeeding), and all the benefits for their infant*; 2- *corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes*; 3- *the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g., with white skin) – so women want to use the formula*; 4- *the risk of becoming dependent on expensive formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant*)]?

Part V: After the Training: Stage of Change, Self-Efficacy, Knowledge and Motivation Levels

6-After the 7-hour in-person training, regarding the new counter-marketing campaign—*A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation*—what were their self-ratings for stage of change, self-efficacy, knowledge and motivation for the behavior of *taking an active role in the campaign*?

Part VI: Self-Rating for Participating in the Campaign—Stage of Change, Self-Efficacy, Knowledge and Motivation Levels

7-After the 7-hour in-person training, what do they report as their dose of exposure to the training, and how do they rate the training session, training manual, and trainer?

Part VII: Dose of Exposure and Rating the Continuing Education Module

8-Were there any significant changes from before the training to after the training for their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [*1- the reasons to breastfeed their infant (i.e., exclusive and optimal breastfeeding), and all the benefits for their infant; 2- corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes; 3- the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g., with white skin) – so women want to use the formula; 4- the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant*)]?

9-What was the relationship between characteristics of participants, and higher after-training self-ratings for stage of change, self-efficacy and motivation for the behavior of talking to expectant and new mothers about four key topics [*1- the reasons to breastfeed their infant (i.e., exclusive and optimal breastfeeding), and all the benefits for their infant; 2- corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes; 3- the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g., with white skin) – so women want to use the formula; 4- the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant*)]?

10-What were the significant predictors of the outcome variable of a post-training higher level of motivation for taking an active role in the proposed campaign (i.e., *A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation*)?

Qualitative Portion of the Study:

11-When given the opportunity for open sharing, how did the women respond to open-ended questions (1-What are the strengths and weaknesses of the training; 2-how could it be improved?; 3-what was the impact of the training on you?; and, 4-what other recommendations or comments do you have to share?)?

Rationale for the Study

There is a rationale for training breastfeeding educators/counselors to take an active ongoing role in *A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation* in Indonesia.

Allen, Vallone, Vargyas, and Heaton (2009) described the Truth Campaign as an effective national smoking prevention campaign designed for youth, using a counter-marketing strategy. The campaign addressed the tobacco industry's tactics, specifically targeting their marketing strategies at youth to discourage smoking. The campaign "featured fast-paced, hard-edged ads" conveying facts about "the addictiveness of smoking, the number of deaths and amount of diseases attributed to smoking" and information about marketing tactics of the tobacco industry (p. 195). Rather than telling youth what to do, the campaign messages conveyed factual information and encouraged them to think about smoking and the tobacco industry (Allen et al., 2009s).

Palmedo et al. (2017) suggested eight key components of effective campaigns against unhealthy food and alcohol: 1. communicating the adverse health consequences of smoking; 2. highlighting how the industry manipulates its consumers; 3. appealing to negative emotions about industry marketing practices; 4. applying disparagement of specific brands by using messages or images that challenge, mock, or undermine corporate brand images; 5. tailoring demographics or psychographics to reach a segmented audience; 6. criticizing how industry targets vulnerable populations; 7. establishing counter-marketing campaign branding which includes all design elements;

and, 8. engaging target audiences in all phases of the counter-marketing campaign (Palmedo et al., 2017, p. 133).

Palmedo et al. (2017) further concluded that counter-marketing campaigns might be “most effective if they consider both individual and policy-level interventions” (p. 137). Importantly, Palmedo et al. (2017) highlighted the critical role of media in using counter-marketing campaigns, as follows:

Media advocacy represents a promising area for counter-marketing where the goal is not just individual behavior change but also regulation or policy change. Through the use of earned media, this strategy can be a critical method to overcome this financial barrier to fair and balanced health communication. (p. 138)

In addition, in order to achieve its full potential, a counter-marketing campaign “must be integrated with sustained and coordinated multisectoral efforts” (Palmedo et al., 2017, p. 139). Integrating the counter-marketing method with other public health strategies, as well as expanding audiences to include policymakers, advocates, and consumers, may contribute to a successful campaign (Palmedo et al., 2017).

Due to its multidisciplinary nature, the definition of health communication has evolved over time (Schiavo, 2013). Hence, to date there are several definitions of health communication, but all of them refer to, “the process of advocating for and improving individual or public health outcomes” (p. 4). A key objective is to influence and motivate individuals, communities, health care professionals, policymakers, or special groups about important health issues. Further, health communication helps its audiences “to adopt and sustain a behavioral practice or a social or policy change that will ultimately improve health outcomes” (Schiavo, 2013, p. 3).

Schiavo (2013) suggested that health communication is a long-term, audience centered, and research-based process and approach. The audience is not merely a target, but is also seen as “an active participant” in the whole process, from “analyzing the health issue” to “finding culturally appropriate and cost-effective solutions” (p. 12). In addition, health communication is grounded in comprehensive research about a specific health issue (Schiavo, 2013).

Brief motivational interviewing may be effective in propelling breastfeeding educators across the stages of change toward taking action within just one continuing education session, such as action to engage in behaviors for a counter-marketing campaign, following the work of Wallace (2019) and Miller and Rollnick (2013). It is also possible for breastfeeding educators to learn a brief form of motivational interviewing that they may deploy with expectant and new mothers, so within just one conversation, mothers move across the stages of change toward taking action to engage in behaviors for a counter-marketing campaign. Specifically, mothers may reduce their risk of abandoning the goal of optimal breastfeeding through the effective prevention of breastfeeding cessation. To achieve such goals, Wallace (2019) describes motivational interviewing (Miller & Rollnick, 2013) as an important tool for enhancing clients’ internal motivation to pursue behavior change. Deploying techniques of motivational interviewing may enhance internal motivation such that clients move across stages of change (DiClemente & Velasquez, 2002), as follows: from not even thinking about change (precontemplation stage), toward thinking about change (contemplation stage), as well as toward preparing to change (preparation stage); in addition, the goal is for clients to move toward actually taking action to change (action stage, for up to 6 months), as

well as toward seeking to maintain behavior change over time (maintenance stage, for greater than 6 months to a lifetime).

Wallace (2019) has drawn upon the work of Miller and Rollnick (2013) to advance a brief form of motivational interviewing, described as follows:

...As a result of an assessment or interview process [e.g. a conversation with a breastfeeding educator/counselor], clients may have their consciousness or awareness raised with regard to the extent to which they have a problem or may potentially suffer negative consequences from their behavior [e.g. using formula and the cessation of breastfeeding]. They emerge as concerned about their behavior, which is typically addictive, compulsive, or high risk in nature, justifying their concerns [e.g. dependence on formula, breastmilk production stops].

More specifically, many clients become concerned clients as a consequence of having been exposed to motivational interviewing (Miller & Rollnick, 2013)... including [through use of] ...the mnemonic acronym CDMN—where C is for concerns, or asking about concerns—within brief motivational interviewing... Within motivational interviewing, clients are asked questions about any problems or concerns they have in relation to their behavior. They may emerge as concerned clients [C]. Within motivational interviewing, it is also common to go beyond asking clients about their concerns with their behavior, or about any problems they are having that are related to their behavior—asking clients about any next steps they feel they should take. A common response to this question involves clients' responding that they think they should stop, change, or alter their behavior, or that they should possibly enter treatment. Clinicians typically also offer a menu of options [M] ... (p. 34)

Thus, it is possible to provide continuing education to breastfeeding educators on how to deploy this brief form of motivational interviewing, using Wallace's (2019) CDMN. It is also possible to adapt motivational interviewing, so it is culturally appropriate.

This follows from how Miller and Rollnick (2013) describe motivational interviewing as not only an evidence-based approach, but also a technique that can be

adapted cross-culturally and used globally. For example, it has been used in African in rural Zambian villages to promote safe water practices.

Wallace (2019) justified further the recommended brief from of motivational interviewing, using the mnemonic acronym CDMN, as follows:

- 1) how asking about *concerns* (*C*) is supported by the Miller and Rollnick (2013) discussion of *focusing* as a process that involves the ethical navigation of goals;
- 2) how *developing discrepancy* (*D*) is supported by their discussion of *evoking*, wherein strategic evoking presupposes a chosen goal and strategically guides the person toward it—strengthening motivation for change;
- 3) how generating and reviewing a *menu of options* (*M*) is part of their discussion of the *planning* process; and,
- 4) how asking about *next steps* (*N*) is also part of their discussion of the *planning* process. (p. 108)

It is possible for breastfeeding educators/counselors to integrate CDMN within their work for *A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation*. For example, they can provide information about the campaign, and then ask mothers about their concerns (*C*), such as trying a free sample of infant formula, being given misinformation (lies) about the benefits of formula, trying the formula and having her own breast milk production stop, being left dependent on expensive formula, and increasing the risk of greater morbidity and mortality for her infant. And, for example, in developing discrepancy (*D*), a breastfeeding educator/ counselor could point out the discrepancy between the planned behavior of using commercial infant formula and other breastfeeding substitutes (e.g., bottles), and the goal of having a healthy baby who develops into a healthy toddler and child. Breastfeeding educators could then provide mothers with a menu of options (*M*) that includes choosing exclusive and optimal breastfeeding, or choosing commercial infant formula, or some other option identified. Mothers could then be asked about what

they choose to do as their next step (N), or what they are planning to do now (e.g., think about this new information and discuss it with others), or might decide to do it in the near future (e.g., exclusive and optimal breastfeeding—and not trying the free sample of commercial formula, including disposing of it, as if it were a dangerous drug they could get addicted to, despite a healthcare provider giving it to them and lying to them about the benefits).

Delimitations

The study was delimited to breastfeeding counselors and educators residing in Indonesia, capable of speaking and reading English at the secondary level, and able to provide informed consent. Finally, the study was delimited to those who attended the training and completed to the pre-and post-paper surveys.

Limitations

Several limitations of this study should be noted. First, the study sample was one of convenience. The study setting was in two cities in Indonesia, and subjects were recruited through three local organizations relying on the organizations' members. The lack of representativeness of the sample inhibited generalization of the study's findings.

Another limitation was that the methodological nature of this pre-and post-survey study prohibited the use of causal inference. The temporal sequence between variables remains unaddressed.

Definition of Key Terms

Breast-Milk Substitutes—This term refers to any beverage and food being marketed as suitable for feeding a child up to the age of two years, including infant formula, follow-up formula, and “other beverages replace that part of the diet that, ideally is best fulfilled by breast milk” (ICDC, 2008, p. 9).

Commercial Formulas—This term refers to all types of formulas, which are commercially made and marketed for infants and young children, including infant formula (for infants aged 0-6 months), follow-up formula (for infants aged 7-12 months), growing-up or toddler formula (for young children aged 13-36 months), and special formula that is sold for infants with dietary conditions such as soya-based and lactose-free varieties (Baker et al, 2016).

Counter-marketing— This term means “an attempt to designate the product as intrinsically unwholesome” or is a task of trying “to destroy the demand for something” (Kotler, 1973, p. 48). Palmedo et al. (2017) defined counter-marketing as “countering the practices that marketers use to sell unhealthy products by employing health communications strategies to reduce the demand for the products” (p. 120). Counter-marketing is also defined as a strategy to address the marketing efforts by the commercial formula industry and its distributors, which have a negative effect on breastfeeding, by “seeking to limit these companies’ uses of competing imagery and influences in the media and health settings” (Shealy et al., 2005, p. 35).

Continued Breastfeeding—Continued breastfeeding means to continue to breastfeed up to two years of age or beyond in addition to nutritionally adequate and safe complementary feeding starting from the age of six months (WHO, 2001).

Exclusive Breastfeeding—This term means that the infant receives only breast-milk from her or his mother, or wet nurse, or expressed breast milk. No other liquids or solids are given – not even water – with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines (WHO, 2001).

Early Initiation of Breastfeeding—This term means to put the baby to the mother’s breast within an hour after birth (WHO, 2003). The word “early initiation” of breastfeeding refers to breastfeeding that started on the first hour of life (Edmond et al., 2006).

Health Communications – This term refers to “the scientific development, strategic dissemination, and critical evaluation of relevant, accurate, accessible, and understandable health information” that is communicated to and from intended audiences “to advance the health of the public” (Benhardt, 2004, p. 2051). Health communication aimed at influencing “individual and community decisions that enhance health” (USDHHS & National Cancer Institute, 2002).

Inappropriate Marketing- This term also refers to the word “unethical” or “aggressive” marketing (Theurich et al., 2018). The term is defined as marketing strategies of the baby food companies that interfere with breastfeeding (WHO, 2017). Examples of aggressive marketing include the heavy use of unsubstantiated health and nutrition claims in commercial formula advertisements, and the provision of inadequate or complete messaging on exclusive and optimal breastfeeding on commercial formula

labels (3). Such marketing strategy contribute “to obesity and non-communicable diseases, and creates dependency on commercial products, or otherwise is misleading” (WHO, 2017).

Marketing— The WHO’s International Code of Marketing of Breast-milk Substitutes defined marketing as “product promotion, distribution, selling, advertising, product public relations, and information services” (WHO, 1981).

Motivational Interviewing—This term refers to a collaborative conversation style used “for strengthening a person’s own motivation and commitment to change” (Miller & Rollnick, 2013, p. 21). The pragmatic definition of motivational interviewing is “a person- centered counseling style for addressing the common problem of ambivalence about change” (p. 21). The technical definition of motivational interviewing is “a collaborative, goal-oriented style of communication with particular attention to the language of change” (p. 29). The goal of motivational interviewing is for a person to change his or her behavior (Miller & Rollnick, 2013).

Optimal Breastfeeding—This term refers to the WHO and the United Nations Children’s Fund (UNICEF) organizations’ global public health recommendation where babies should be breastfed within the first hour of birth, be exclusively breastfed for the first six months, and continued to be breastfed for an additional 18 months or longer, along with adequate complimentary foods (WHO, 2008, p. 7-8).

Self-Efficacy—Bandura (1986) defined self-efficacy as “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (p. 391). Self-efficacy is one of the central concepts of Bandura’s

Social Cognitive Theory. This term refers to how people judge their own capabilities and perceptions of efficacy affect their intention and behavior (Bandura, 1986).

Stages of Change—Stages of Change is one core concept of the Transtheoretical Model to integrate processes and principles of change across major theories of intervention” (Prochaska et al., 2008, p. 97). Stages of Change involves a series of incremental phases from an initial pre-contemplation stage, to contemplation, then to preparation, action, and to maintenance, as well as potentially relapse (DiClemente & Velazquez, 2002).

Abbreviations

- **AA-** Arachidonic Acid, an omega-6 polyunsaturated fatty acid that is essential for the growth and the repair of skeletal muscle tissue
- **DHA-** Docosahexaenoic Acid, an omega-3 polyunsaturated fatty acid that is essential for the growth and functional development of the brain in infants
- **LCPUFAs-** Long-chain Polyunsaturated Fatty Acids;
- **The Code:** The International Code of Marketing of Breast-milk Substitutes
- **UNICEF-** United Nations International Children's Fund;
- **WHA-** the World Health Assembly
- **WHO-** the World Health Organization

Conclusion

This chapter provided an overview of addressing multinational corporations' aggressive marketing of commercial formula and the cessation of breastfeeding through a design and evaluation of a counter-marketing continuing education module. It also introduced the purpose, objectives, research questions, and rationale of this study.

Chapter II will provide a review of the literature that was relevant to this dissertation. Chapter III will describe the methodology of this study. Chapter IV will present the results of the data analysis. And, lastly, Chapter V will conclude this study with a discussion of the study's findings, implications, and recommendations for future research.

Chapter II

LITERATURE REVIEW

This chapter presents the review of literature. More specifically, it covers literature on the following topics: 1. global sales of commercial formula; 2. the WHO International Code of Marketing of Breast-milk Substitutes (the Code); 3. overview of the global implementation of the Code; 4. global pattern of pervasive marketing of commercial formula; 5. insufficient evidence for marketing claims for commercial formula; 6. commercial formula marketing and negative effects on breastfeeding; 7. maternal perceptions of commercial formula advertising; 8. breastfeeding rates and national policies on commercial formula marketing in Indonesia; 9. use of counter-marketing to address public health problems; and 10. theories guiding the research.

Global Sales of Commercial Formula

Globally, the sales of commercial baby formula are growing (Rollins et al., 2016). This trend is also expected to continue, especially in the middle-income countries of East and Southeast Asia (Baker et al., 2016). From 2008 to 2013, Baker et al. (2016) studied global trends and patterns in the use of commercial formula in 80 countries. Using the World Bank's category income bracket, the study included 15 lower-middle-income

countries, 27 upper-middle-income countries, and 39 high-income countries

“representing 280,220,000 infants/children aged 0-36 months in 2013” (p. 2541). Trends and patterns in commercial formula sales were presented as follows:

the total world MF [milk formula] sales volume grew by 40.8% from 5.5 to 7.8 kg per infant/child...projected to increase to 10.8kg per infant/child by 2018. Volume growth has been led by the infant (0–6 months) and follow-up (7-12 months) formula categories. (p. 2545)

Finding showed that, from 2008 to 2013, the sale of commercial formula grew rapidly in particular countries, including China, Indonesia, Malaysia, Thailand, and Vietnam (Baker et al., 2016). Commercial formula sales in those five countries grew by 106%, 69.4%, 40.0%, and 96.9%, respectively, during those years. During the same period, China had relatively high sales volumes and growth rates due to the large size of its child population. Among other lower-middle-income countries, Indonesia and Vietnam had strong sales growth. These growing sales are likely associated with country income levels, with wide variability existing between countries (Baker et al., 2016).

While sales in infant and follow-up formulas showed a downturn in higher-income countries such as France, Japan, Korea, the United States, and Russia, overall total formula sales grew, with a particular increase in toddler formula sales. Moreover, it was predicted that infant and follow-up formula products would account for “most of the world volume growth in 2014-2018” (Baker et al., 2016, p. 2545).

Likewise, Rollins et al. (2016) found that the retail value of commercial formula is growing and unlikely to decrease. When the global growth of real gross domestic product turned negative in 2009, “baby milk formula sales still grew by 8% annually in constant value terms” (p. 495). In 2014, the global sales value of all commercial baby

formula was about US\$44.8 billion, and it is projected to reach \$70.6 billion by 2019 (p. 495). The study also described the following consumption of commercial formula:

Per-child consumption of all types of formula (total retail volumes divided by the population of children aged 0-36 months, corrected for population growth) is highest in western Europe and Australasia, followed by North America. ...Although present consumption is lower in other regions, the corresponding increase in the Middle East and Africa is expected to be more than 7% and in the Asia Pacific it is expected to be more than 11%. (p. 495)

The sales of infant formula in high-income countries are static or decreasing due to “market maturity, decreasing birth rates, and legislation on advertising and sales” (Rollins et al., 2016, p. 496). On the other hand, the sales of follow-up and toddler formula in such countries were projected to grow by 15.2%, except in France and the U.S., where the market growth rate is projected to turn negative. These decreases are the result of “legislation, public awareness campaigns, and actions by civil society in support of breastfeeding” (p. 497). In contrast, the strong sales numbers for commercial formula in middle-income countries can be explained by the fact that “these products are often not covered under national Code-related laws and regulations” (p. 496).

The WHO International Code of Marketing of Breast-milk Substitutes

Recall from Chapter I that the WHO International Code of Marketing of Breast-milk Substitutes, or “the Code,” was formulated in response to the need for international regulation of the promotion and marketing of multinational corporations’ products that directly compete with breastfeeding (International Code Documentation Centre [ICDC],

2008). Thus, all products that are marketed as substitutes for breast milk are required to comply with the Code, as stated in the article 2 of the Code:

The Code applies to the marketing, and practices related thereto, of the following products: breast-milk substitutes, including infant formula; other milk products, foods and beverages, including bottlefed complementary foods, when marketed or otherwise represented to be suitable, with or without modification, for use as a partial or total replacement of breast milk; feeding bottles and teats. It also applies to their quality and availability, and to information concerning their use. (WHO, 1981, p. 8)

The Code prohibits any forms of marketing of infant formula and any breast-milk substitute products to the general public and mothers (WHO, 1981). Focusing on the promotion of breastfeeding, the Code clearly regulates that health care systems should not be used for advertisement, promotion, or other forms of marketing of breast-milk substitutes. The Code restricts the baby food industry from giving gifts or free samples to mothers that promote the use of bottle-feeding, and industry representatives are not allowed to directly contact mothers. It also prevents the industry from providing donations and supplies to health care systems or their workers. Furthermore, the Code sets standards for information on breast-milk substitutes, as well as educational materials on infant feeding, pictures, and information on labels (WHO, 1981).

Nevertheless, the Code does not prevent the baby food industry from selling their products. Instead, it aims to ensure that the marketing distribution of any forms of breast-milk substitutes should not be conducted “in ways that may interfere with the protection and promotion of breast-feeding” (WHO, 1981, p. 6). In addition, the Code ensures that appropriate and unbiased information about infant feeding is available for mothers who only partially breastfeed, or do not do so at all (WHO, 1981). Above all, the Code is intended to protect breastfeeding, as stated in the first article of the Code, as follows:

The aim of this Code is to contribute to the provision of safe and adequate nutrition for infants, by the protection and promotion of breast-feeding, and by ensuring the proper use of breast-milk substitutes, when these are necessary, on the basis of adequate information and through appropriate marketing and distribution. (p. 8)

Therefore, the Code recommends that governments have the responsibility to provide objective and consistent information on infant and young child feeding (WHO, 1981). Actions taken by the government should cover “the planning, provision, design and dissemination of information” (p. 10). All informational and educational materials should clearly inform readers of “the benefits and superiority of breast-feeding,” “maternal nutrition, and the preparation for and maintenance of breast-feeding,” “the negative effect on breast-feeding of introducing partial bottle-feeding,” “the difficulty of reversing the decision not to breast-feed,” and “where needed, the proper use of infant formula, whether manufactured industrially or home-prepared” (WHO, 1981, p. 10).

The implementation of the Code at the country level, however, must be read together with subsequent World Health Assembly (WHA) resolutions (ICDC, 2008). The WHA is the decision-making body of the WHO, which functions to determine the policies of the organization, including complementing the Code by adding updated recommendations in accordance with the latest marketing trends and scientific knowledge. Regardless, the Code imposes no sanctions; rather, it serves as a foundation for member states to enact their own national policies. Thus, in accordance with the Code principles, “member states must translate the Code into national legislation, regulations or other suitable measures as appropriate to their social and legislative frameworks” to have legal effect (ICDC, 2008, p. 2).

Despite its pivotal regulations on infant formula marketing globally, the Code is also not a Convention, the strongest form of WHO legal status, in which a two-thirds majority of the WHA is required for national adoption (Shubber, 1988). Nor is it a “Regulation,” in which only a simple majority of the WHA is required for adoption into national regulations within a stated period of time. The legal form of the Code alone is determined to be a recommendation. A WHO Recommendation does not have legal binding on member states; nevertheless, a recommendation carries “some moral and political weight, as they constitute the judgement of the collective membership of the Organisation” (p. 30).

Theurich (2018) pointed out that the WHA 69.9 aimed to protect optimal breastfeeding by calling for an end of unethical marketing of commercial foods and formulas for infants and young children. The baby food industry usually recommends large portion commercial complementary food for young children, which exceeds the recommendation of daily energy intakes, as well as replaces human milk in older breastfed infants. This marketing practice misleads parents and caregivers regarding “the amount of foods that young infants are able to eat” (p. 273). The resolution also “protects sustained breastfeeding during the preschool years,” while ensuring the appropriate marketing of commercial formula and foods for preschool-age children (p. 273).

Therefore, Theurich (2018) suggested that health professionals be “informed and cognizant of aggressive marketing and promotion tactics” that are used by baby food companies (p. 274). These tactics may “deceive, exaggerate, confuse, or manipulate” both health professionals and parents to encourage a certain nutrition behavior that may be harmful for the health of young children (p. 274). More importantly, health

professionals should refuse donations, sponsorship, or endorsement that are offered by the baby food industry. Such offers are considered as a type of the company marketing approach (Theurich, 2018). Theurich (2018) identified key recommendations that include increasing public awareness campaigns, more scientific research, and political advocacy at the national level to ensure the implementation of the resolution.

Global Implementation of the Code of Marketing of Breast-milk Substitutes

WHO, UNICEF, and International Baby Food Action Network (2016) found significant progress with the implementation of the Code. A survey distributed to 194 WHO member countries assessed the following:

The questions covered legislative measures taken, including information about key legal provisions on scope (designated products and age limits for introduction of products), informational and educational materials, promotion of designated products to the general public, as well as to health workers and health facilities, labelling of designated products and the establishment of monitoring mechanisms. (WHO et al., 2016, p. 13)

Findings showed that as of March 2016, 135 member countries had some regulations in place covering some provision of the Code, as compared with 2011, when only 103 countries had relevant regulations. Of the 194 member countries, “39 have comprehensive legislation or other legal measures,” which reflect all or most provisions of the Code. Thirty-one countries have legal measures that incorporate many provisions of the Code, while an additional “65 countries have legal measures that contain a few provisions” (p. 17). A further 49 countries were reported to have non-legally binding

measures in place, while there was no information available for the remaining 10 countries (WHO et al., 2016).

Notwithstanding the progress made with Code implementation, a “considerable variation in the quality and substance” of specific provisions in national legal measures was found (WHO et al., 2016). For instance, provisions in only about one-third of member countries explicitly “cover products that are marketed for children over the age of 1 year” as required by the Code (p. 20). Regarding informational and educational materials, member countries were required to ensure that such materials describe the health hazards, social implications, and financial implications of formula use. However, “only one third of countries (N = 109) require the inclusion of information on the social and financial implications” (p. 20). Further, only 58% of member countries prohibit advertising to the general public, 59% prohibit giving samples and gifts to mothers and pregnant women, and only 37% prohibit financial or material gifts to health workers or members of their families. Fewer than 44% of countries (N = 112) prohibit “the provision of free or low-cost supplies to health facilities,” and 113 countries prohibit financial support to health workers (pp. 25-26). Moreover, only 59% of member countries (N = 113) require the inclusion of a clear message on the superiority of breastfeeding, and 56% (N = 109) provide instructions for appropriate preparation of formula, along with a warning about the health hazards associated with inappropriate preparation (p. 27). Also, only 40% of member countries (N = 109) ban the use of nutrition and health claims on designated products (WHO et al., 2016).

In addition, findings showed that only 66 member countries have legal provisions that facilitate “a formal monitoring and enforcement mechanism” (WHO et al., 2016, p.

27). Information on these mechanisms was very limited. The report provided some additional details, as follows:

Updated information on the existence of a formal monitoring and enforcement mechanism was available from only 55 of 194 countries...Of those, 32 have a formal monitoring and enforcement mechanism that is operational. Most of those (88%) have mechanisms to monitor compliance with national legislative or other appropriate measures, while three countries do not specify this. Twelve countries appear to have no formal mechanism in place, and a further 11 do not have clear information as to whether their mechanism is operational. (p. 31)

The report indicated that there were two main challenges in implementing the Code: that the World Trade Organization Agreements and other trade and investment agreements are often delayed or aborted, which can hinder Code implementation, and the use of new marketing techniques and strategies, driven by advances in the Internet and social media, which are not explicitly covered by the Code. In response to these and other challenges, member countries are required to strengthen national legal measures and “partnerships to provide technical and legal assistance to countries in effective Code monitoring and implementation,” as well as to put into place “formal Code monitoring and enforcement mechanisms” (WHO et al., 2016, pp. 42-43).

Vinje et al. (2017) examined national Code implementation measures in Cambodia, Indonesia, Myanmar, Thailand, and Vietnam. For each national policy, the study qualitatively analyzed “the type of legal document, the products, age range and type of promotion under the scope of the regulation” (p. 1334). Regarding national measures for each country, findings showed the following:

Five countries in the present study have adopted the Code...Thailand is the only country with a voluntary agreement between the government and baby-food companies. In Cambodia, Myanmar and Vietnam, national measures regulate products for children up to 24 months. In Thailand and Indonesia, only BMS intended for feeding infants up to 12 months are covered. Indonesia has several regulations adopting different parts of the Code; the two regulations covering the

scope of marketing in mass media were utilized for the present study. In Vietnam, the Advertisement Law...became effective in 2012, and then the Decree was issued in 2014 to provide guidelines for the implementation and enforcement of this Law. (p. 1335)

Despite legal measures in place at the national level, the study found numerous examples of commercial formula marketing that fell under the scope of the Code in all five designated countries (Vinje et al., 2017, p. 1339). Findings showed that “Facebook pages can be used as an unregulated platform” for companies to promote and market their products (p. 1339). More specifically, the companies were found to create and moderate “217 Facebook posts or conversations” (p. 1338). Topics of these conversations included new mothers worrying about low breast-milk production, question around breast milk’s adequate energy and nutrition, and how to use infant formula. In addition, the study provided the following detailed of the Facebook posts:

BMS [breast-milk substitute] companies also used their Facebook pages to promote their brands and products and often gave advice about infant and young child feeding. BMS for children under 24 months old was promoted either directly by using ambiguously the word ‘baby’ or indirectly by showing pictures of the products, newborns, infants or young children, or sales representatives or health workers offering free samples to new parents in hospitals. Parents were invited to like and share pictures online, and the companies gave advice about infant and young child feeding. (Vinje et al., 2017, p. 1338)

Hidayana et al. (2017) found that, although national Code implementation measures are in place in Indonesia, there have been widespread violations of it by health workers and commercial formula companies, along with their representatives, in seven of the country’s provinces. This study involved 18 health facilities, 77 health workers, and 874 women in six provinces. A cross-sectional survey and the Interagency Group on Breastfeeding Monitoring Protocol were used to measure compliance with the Code. A multistage cluster sampling was applied to select the following three samples:

...(i) health facilities (public and private) serving at least ten pregnant women or mothers of young infants daily, on at least two d/week; (ii) health workers at participating health facilities; and (iii) pregnant women and mothers of infants under 6 months of age. (p. 166)

Findings showed that the Code violations could be observed inside health facilities and in the general public. Overall, 72% of women in the study had seen “promotional materials for infant formula,” 68% had seen follow-on formula ads, 76% had seen growing-up formula ads, 36% had seen ads for complementary foods for infants under six months of age, and 2% had seen “promotional materials for drinks for infants under 6 months of age” (p. 168). Three-quarters of the women surveyed had seen advertising for all types of “breast-milk substitutes at health facilities” (p. 171). A small percentage of women (15%) reported receiving samples or gifts at health facilities, as well as receiving advice and information from health workers about using formula “to complement breast milk when breast-milk production is low” or “to increase the weight or nutritional status of their baby” (p. 168). Also, four out of 18 health facilities were found receiving free samples, materials, or equipment from different companies that carried brand-name formula. These samples included infant formula, bottles, teats, milk for pregnant women, and special formula milk, whereas the materials included “leaflets, posters/calendars, stationery, growth charts, bags, baby boxes, incubators and (surprisingly) contraceptives” (Hidayana et al., 2017, p. 169).

Regarding promotion for commercial formula in the general public, women in the study reported observing promotional materials or advertisements for commercial formula at drugstores, in magazines, and on television (Hidayana et al., 2017). More specifically it was described, as follows:

TV was identified as the most frequent place where women had seen the promotional materials for infant formula (84 %), follow-on formula (85.5%),

growing-up formula (92 %), complementary foods for infants under the age of months (86.5%) and drinks for infants under the age of 6 months (50%). (p. 168)

In addition, Hidayana et al. (2017) analyzed the labels of 44 brands of commercial formula from 19 producers. Findings showed that the most common labeling violations included “statements or visuals that discouraged breast-feeding,” and “not mentioning the consideration of local climate with regard to the expiration date” (p. 170). Further, the use of pictures related to babies, or other pictures that idealized the use of commercial formulas, was found to be prevalent. The study concluded that, despite the fact that the government of Indonesia has in place two pieces of national legislation that partially incorporate the Code, formal Code monitoring and enforcement mechanisms have not yet been well established (Hidayana et al., 2017).

Global Pattern of Pervasive Marketing of Commercial Formula

According to the Code, marketing by the baby food industry is defined as “product promotion, distribution, selling, advertising, product public relations, and information services” (WHO, 1981, p. 9). The Code prohibits any forms of commercial formula advertising and promotion through health systems and to the general public. These include the distribution of free samples and other promotion devices “to induce sales directly to the customer at the retail level” for instance, by giving special sales and discount coupons (p. 9).

Despite the Code’s marketing regulations, the commercial formula industry continues to market their products to pregnant women, mothers, other family members, and health facilities and their workers (Piwoz & Huffman, 2015). Manufacturers, their

distributors, and retailers have been found to promote their products to health systems and providers by offering “incentives and stipends to attend sponsored meetings,” and free gifts with company logos to health professionals (p. 377). Within health facilities, commercial formula is commonly marketed to mothers through the distribution of hospital discharge packs containing promotional materials. Advice by health professionals to introduce formula is also noted as a marketing tactic used by formula companies. Moreover, marketing to the general public via the Internet and social media is also on the rise (Piwoz & Huffman, 2015).

In a sample of Indonesian hospitals, Flaherman et al. (2018) studied barriers to the establishment of exclusive breastfeeding, and found that infant formula marketing is a primary factor. Using a qualitative method, a total of 54 participants in three provinces across the country were interviewed. Participants, which consisted of hospital administrators, doctors, midwives, nurses, postpartum mothers, health department administrators, representatives from professional organizations, and representatives from community support groups for breastfeeding were asked about “attitudes, opinions and experiences” regarding early breastfeeding support (Flaherman et al., 2018).

Findings showed that the distribution of infant formula at the hospital was a main barrier to the establishment of exclusive breastfeeding (Flaherman et al., 2018). Representatives of formula companies “continue to have an influence on breastfeeding in and out of the hospital” (p. 2692). Further, both mothers and health providers have the perception of “the need for infant formula supplementation” which creates a demand for formula (Flaherman, et al., 2018, p. 2695).

Recommendations covered how breastfeeding awareness and education are two areas that need to increase in the health care setting (Flaherman et al., 2018). Further, since inadequate expertise of health providers in breastfeeding is found as “a major barrier to promotion of exclusive breast-feeding,” addressing these gaps is critically needed to prevent staff from introducing infant formula, particularly for first-time mothers (Flaherman et al., 2018, p. 2695).

From 2007 to 2012, Basch et al., (2013) examined the prevalence of advertisements for infant formula in two popular U.S. parenting magazines, *American Baby* and *Parenting Early*. Descriptive statistics and a one-way analysis of variance (ANOVA) were used to identify the overall number of advertisements and “the differences in infant formula advertisement prevalence across the 5-year period” respectively (p. e30). A total of 93 magazine issues were identified; overall percentage of formula advertisements for infants 0-6 months was 2.2% (Basch et al., 2013). However, at its peak, allocation for formula advertisements accounted for almost 15% of the total advertisements in both magazines. Thus, it was determined to be an aggressive formula marketing strategy in both magazines. Moreover, trends in infant formula advertisement were explored; the highest prevalence of infant formula advertisements occurred in 2007, declined in 2008, then increased again in 2009 (Basch et al., 2013).

The utilization of a wide range of mediums to market and promote commercial formula was also documented in the Philippines (Sobel et al., 2011). About 68.4% of mothers of young children in the study recalled seeing commercial formula advertisements on television, on the radio, and in a health center/hospital, in a

magazine/newspaper, on a billboard/poster, or in a grocery/supermarket/shop. Based on all the advertisements they had seen; the study found the following claims:

Of the 345 respondents, 59.1% (204) recalled an advertisement message content. Of these 204, 47.1% (96) recalled it contained ingredients, which “make babies healthy”, 45.3% (92) “make children smart” and 8.3% (17) “protects against infections” and 17.2% (35) recalled that ‘breast milk is best for babies.’ (p. 1447)

Berry, Jones, and Iverson (2011) documented similar marketing strategies, as they specifically examined what mothers, and those who influence mothers, know about formula products from their advertising messages. Findings showed that mothers chose a formula brand “based on the brand they had seen used in the hospitals” (p. 11). Semi-structured interviews with practitioners, as well as six separate focus-group discussions with mothers, grandmothers, and child/family health nurses, were conducted (Berry et al., 2011). Findings showed that health professionals, such as general practitioners or family health nurses, are important sources of “information about infant formula for mothers” (p. 11). However, instead of having independent information about infant formula products, the health professionals seemed to “rely on advertising materials” (p. 17). Some of the mothers even reported that sales staff from infant formula companies had provided them with information about formula products (Berry et al., 2011).

While the advertising of infant and follow-on formula products is prohibited in Australia by the 1992 Manufactures and Importers Agreement (MAIF), toddler formula products were advertised without restriction (Berry et al., 2011). Further, toddler formula advertisements were found “to be advertising formula milks products” (p. 9). Toddler formula is also presented in packaging that is very similar to that of infant formula. In addition, information about ingredients and their functions presented on infant formula

packaging was found to be difficult to understand, “even for educated health professionals” (Berry et al., 2011).

Chen, Chang, and Gong (2015) examined the strategies, as well as the health and nutrition statements, used to market these products in Taiwan. The frequency at which “formula and complementary food ads are printed in Taiwanese pregnancy and early parenting magazines” was observed (p. 459). Authors conducted a content analysis of infant and toddler food advertisements in four magazines published in Taiwan in 2011. A total of 756 infant and toddler advertisements were found, of which 492 were formula advertisements; the rest (264) were complementary food advertisements (Chen et al, 2015).

Chen et al. (2015) found that formula product ads were more diverse than those of complementary food ads, ranging from promoting products to advertising services such as antenatal classes (N = 11) and baby contests (N = 11) (p. 462). The antenatal class ads often promoted formula products for young children and for pregnant mothers. Mothers who read these Taiwanese magazines were found to be “highly exposed to infant and toddler food ads, especially formula ads” (p. 463). Further, 597 (75.1%) of advertisements for formula products contained specific health claims, and 671 (84.5%) contained specific nutrition claims. Advertisements for complementary food products contained 235 (58.1%) specific health claims, and 176 (44%) nutrition claims (p. 463). Recommendations covered how “Taiwanese formula product manufacturers aggressively promote their products” (Chen et al., 2015, p. 464).

Pries et al. (2016) estimated exposure to promotional practices for commercial formula, and documented breastfeeding support in health facilities and the consumption

of commercial formula in Phnom Penh, Cambodia. This cross-sectional study involved a total of 294 mothers with children younger than 24 months of age, using 31 different child health services. The promotion of formula products was found to be aggressive, particularly on television (Pries et al., 2016). Findings showed a high prevalence of the promotion of all types of commercial formula. Mothers frequently reported having seen commercial formula promotions “on television and within stores, [or in] branding on health facility materials/equipment” (p. 47). Nurses and midwives were reported as being the most common sources of information of infant feeding. Unfortunately, those health professionals were also reported to recommend that mothers use certain commercial formula products from Dumex and France Bebe “since the birth of their youngest child” (p. 45). The study concluded that the promotion of products plays a substantial role in influencing a mother’s decisions about infant feeding (Pries et al., 2016).

A systematic monitoring of commercial formula advertisements in Cambodia, Indonesia, Myanmar, Thailand, and Vietnam between 2015 to 2016 revealed inappropriate promotion of commercial formula (Vinje, et al., 2017). The study analyzed commercial formula market size and growth, and mass media advertisements. The study examined the following:

We targeted advertorials (defined as media materials combining information with product or brand promotion), editorial content (defined as all content produced by journalists; not performed in Myanmar) and Facebook posts (in Indonesia and Thailand). Companies and brand names identified through monitoring traditional media in Cambodia, Myanmar and Vietnam were chosen and the researchers collected the thirty latest posts from their Facebook pages. (p. 1335)

Vinje et al. (2017) identified at least four tactics used by the baby food industry to market their products. First, the companies focused on advertising of “growing-up,” or

toddler formula, which is not covered under national regulations (p. 1339). Second, they engaged in cross-promotion by using “similar branding, pictures and logos on a range of products” from commercial formula for pregnant or lactating women to growing-up formula for toddlers (p. 1339). Third, they made unsubstantiated health claims about things like “optimal development or contributing to stronger, taller and more intelligent children” (p. 1339). Fourth, they used social media and networking sites for advice, promotion, and increased exposure to their products. In addition, the industry was found to sponsor numerous health events in which companies and distributors presented themselves as reliable sources for the provision of health information (Vinje et al., 2017).

The study suggested a complex relationship between the number of newborns, market size and growth, and the number of advertisements, which the researchers explained as follows:

In Vietnam, the number of print materials was lower than in Thailand. Potential explanations are that Vietnam has a quite intense television campaign already or that Thailand’s market was already dependent on milk formula and, thus, just needed periodic reminders to maintain market size. In Indonesia, the number of print materials was highest and the number of television advertisements was second highest. Because Indonesia had the largest number of newborns, there were notable numbers of advertisements on television and in print. However, because mothers were dependent on milk formula...there were fewer advertisements on television and more advertisements in print compared with Vietnam. (Vinje et al., 2017, p. 1340)

Another salient study by Smith and Blake (2013) examined the trends and patterns in print advertising of breast-milk substitutes (BMS) in Australia before and after the signing of the Code 1981 (p. 339). Findings from the study showed that BMS advertisements changed according to public concerns about “unethical marketing of infant foods during 1970s; concerns that culminated in the Code in 1981” (p. 341). Long-

term changes both in “the volume and product composition of print advertising of BMS to mothers and the health professionals” were identified (p. 339).

Smith and Blake (2013) systematically analyzed print advertising of BMS to mothers and health professionals from 1950 to 2010. Two major magazines were chosen to study marketing trends—*Australian Women’s Weekly* (AWW), which targets mothers, and the *Medical Journal of Australia* (MJA), which targets health professionals. The study investigated how commercial formula marketing strategies have responded to changes in both public and medical opinions, and national policy in Australia. Findings showed that advertising in the MJA peaked in 1965, then began to decline significantly until 1975, prior to the introduction of the Code; no advertisements were recorded after 1995. In contrast, advertising in the AWW increased more than five-fold, or 575%, from 1990 to 2009, which suggested that companies shifted from marketing to health professionals to mothers (Smith & Blake, 2013).

In addition, Smith and Blake (2013) assessed “the impacts of voluntary regulation of marketing by industry through the 1992 MAIF Agreement [Manufactures and Importers Agreement],” in supporting breastfeeding practices, and contrasted this with the WHO Code (p. 339). Companies were found to use a variety of strategies that break the MAIF agreement in order to introduce new products or methods for promoting and marketing commercial formula. For example, while there was almost no infant formula advertising in either magazine after the introduction of the Code, the amount of baby food, toddler formula and food, and baby food brand promotion advertising has increased, as has online marketing. Thus, despite the significant decline in infant formula advertising, the MAIF Agreement was concluded insufficient to protect breastfeeding. As

a result, increased commercial formula promotion may lead to “early weaning and reduced exclusivity of breastfeeding, and undermine efforts to increase the duration of breastfeeding” (p. 342).

Insufficient Evidence for Marketing Claims for Commercial Formula

Belamarich, Bochner, and Racine (2016) conducted a critical review of the marketing claims made about infant formula products sold in the United States. The study collected data on formula compositions from the manufacturers’ web sites and from the information on formula labels. The objectives of the study were to describe claims surrounding infantile colic, crying, or perceived gastrointestinal (GI) distress made on formula labels, and to compare them with the evidence in systematic reviews (Belamarich et al., 2016).

Three top formula manufacturers in the United States were identified: Mead Johnson Nutrition, Abbott Nutrition, and Gerber. Of those three companies, 22 infant formulas for term infants were listed on their websites. Of the 22 infant formulas, the study identified 13 that “made claims directed at the treatment of colic and GI symptoms on their product labels” (Belamarich et al., 2016, p. 439). Claims that were commonly made included “lactose-free or reduced,” “contained partially hydrolyzed whey or casein protein,” “contained fully hydrolyzed protein,” “contained pre-/probiotics,” and “soy protein based” (p. 439).

However, findings demonstrated insufficient evidence to support the claims that “removing or reducing lactose, using hydrolyzed or soy protein or adding pre-/probiotics

to formula benefits infants with fussiness, gas, or colic” (Belamarich et al., 2016, p. 437). These claims encourage parents who perceive their infants to be fussy, gassy, or colicky “to purchase lactose-reduced, protein hydrolysate, soy or pre-/probiotic containing formulas as a remedy” despite a great paucity of clinical evidence (p. 440). In addition, analysis of the wording used on the labels, connected with their direct and implied meaning, suggested that the claims were intentionally used to widen the market for modified formula in the absence of evidence (Belamarich et al., 2016).

Moreover, many formula manufacturers add long-chain polyunsaturated fatty acids (LCPUFAs) to their products and claim that those products promote cognitive development, despite a lack of scientific evidence (Hughes, et al., 2017). These insufficiently supported claims may “confuse parents into thinking these formulas are equivalent or superior to breastfeeding,” while these “unsubstantiated formula additives increase costs for families” (p. 105). Further, because the price of formulas that bear such claims are higher than those of regular formula, the claims “reduce the reach of critical federal nutrition programs” in the United States, such as the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), due to insufficient program resources (Hughes et al., 2017, p. 105).

Similarly, Abrams (2015) examined in greater detail infant formula compositions, as well as how they were marketed and regulated in the United States. There is “a considerable consumer confusion about choosing infant formulas” due to the large variety of modified formula available on the market. Consequently, it is almost impossible for any family member or even their pediatricians “to know the subtle differences among formulas on the store shelf” (Abrams, 2015, p. 756).

Regulations related to infant formulas and their marketing in the U.S. include the Infant Formula Act (IFA), rules issued by the Food and Drug Administration (FDA), and recommendations from the Institute of Medicine [IOM] (Abrams, 2015). Further, guidance about infant formula is issued by WIC, which is administered by the U.S. Department of Agriculture (USDA). The FDA does not “approve” infant formulas, but “they review the proposed formula composition and explanation of use that has been provided by the formula company,” not the marketing (Abrams, 2015, p. 756). The IOM, for its part, formed a committee to make recommendations about the testing and evaluation of infant formulas. Moreover, the WIC program plays an important role in deciding both on “statewide and national levels, how new formulas should be handled,” particularly because WIC is a key USDA program (p. 757).

Therefore, there is a critical need to change “the statutory rules under which the FDA evaluates new formulas and changes in existing formulas” according to the IOM’s recommendations (Abrams, 2015, p. 759). In addition, formula manufacturers should be obligated to account for multiple trials in which both novel formulas and changes in existing formulas demonstrate a benefit to infants. Finally, the U.S. government must to adopt the 1981 WHO Code to improve regulation of infant formula marketing (Abrams, 2015).

In Australia, the Australian and New Zealand Food Standard Code prohibits the use of health and nutrition claims in marketing infant formula products (Berry & Gribble 2017). Health and nutrition claims on Australian websites advertising infant formula were studied in order to assess whether this Code was “effectively enforced to protect consumers from inappropriate or misleading advertising claims” (p. 2). Google was used

to identify websites advertising infant formula products. Then, using content analysis methods, a health or nutrition content claim was identified. The Australian and New Zealand Food Standard Code was used as a basis for the development of a thematic coding frame to identify “nutrition claims, health claims, and references to the nutritional content of human milk” used by the websites (p. 3).

Findings showed web pages advertising 25 infant formula products (Berry & Gribble, 2017). Each of these pages “shared a brand identity, contained brand advertising, and direct or indirect advertising” for a commercial formula product or for another infant feeding product that “shares the company’s infant formula brand identity” (p. 3).

Findings demonstrated that health claims, nutrition claims, and references to the nutritional content of human milk were commonly used by the websites advertising infant formula products. Most of them made at “least one health claim,” and many of them also included “at least one nutrition content claim” prohibited by the Australian and New Zealand Food Standard Code (p. 4). These claims were commonly located in sections of the sites claiming to be “educational or informative rather than on pages devoted to promoting a single infant formula product” (p. 4). With regard to findings and conclusions, the current restrictions on the use of certain claims and references about the nutritional content of human milk in infant formula advertising were ineffective, and better enforcement of the regulations is urgently needed (Berry & Gribble, 2017).

Mugambi, Musekiwa, Lombard, Young, and Blaaw (2012) observed the widespread use of claims about prebiotics, probiotics, and synbiotics by formula manufacturers, despite lack of evidence to state that those compounds improve “growth and clinical outcomes in term infants” (p. 1). A robust systematic review using Cochrane

and randomized controlled trial methodologies was employed to determine the effects of infant formula containing prebiotics, probiotics, and synbiotics on clinical outcomes. A total of 25 studies, consisting of three synbiotic studies (N = 475), 10 probiotic studies (N = 933), and 12 prebiotic studies (N = 1563), were included in the review. Results for synbiotics, prebiotics, and probiotics studies were then analyzed separately. Findings regarding synbiotic addition to infant formula is described, as follows:

There was not enough evidence to state that synbiotics in infant formula have a significant effect on growth or lower the incidence of colic, spitting up/regurgitation, crying, restlessness. There is limited evidence that synbiotics do increase stool frequency and effects on stool consistency were inconclusive. (p. 23)

Moreover, findings demonstrated there was not enough evidence to claim that, “synbiotics reduce the risk of infections or decrease the use of antibiotics” (Mugambi et al., 2012, p. 23). Also, there is insufficient data to conclude that synbiotics had demonstrated positive effects on clinical outcomes in formula-fed infants (Mugambi et al., 2012).

Regarding the addition of probiotics to infant formula, the study found that the compounds failed to have any significant effect on weight, length, or head circumference gain (Mugambi et al., 2012). The addition of probiotics in formula was not associated with “fewer episodes of diarrhoea, a lower incidence of colic, spitting up/regurgitation, restlessness, and vomiting” (p. 28). The study further specified that prebiotic formula failed to reduce the incidence of “spitting up/regurgitation, vomiting or crying (no study reported colic) or increased volume of formula tolerated” (p. 28). The study suggested that prebiotic infant formula had no significant effect on reducing upper respiratory infection (Mugambi et al., 2012).

Commercial Formula Marketing and Negative Effects on Breastfeeding

Piwoz and Huffman (2015) conducted a qualitative review to ascertain the relationship between commercial formula marketing and breastfeeding behaviors, and found that commercial formula had a negative effect on breastfeeding patterns and practices (p. 374). Data on commercial formula sales, market trends, and industry patterns were retained from a market research agency, Euromonitor International, then triangulated with other media studies. Findings showed that commercial formula marketing impacts breastfeeding practices. For example, such marketing influences practices in health systems, as well as community norms around “the social acceptability and desirability of MF [milk formula] use” (p. 381). The marketing practices were not only found to undermine “breastfeeding confidence among women,” but also to have a “negative impact on breastfeeding initiation and exclusivity” (p. 381). At the broader level, the study found clear evidence that such marketing affects the implementation of local policies (Piwoz & Huffman, 2015).

Piwoz and Huffman (2015) further suggested that commercial formula marketing is likely to be a significant factor, in the following settings where:

...(1) there are high numbers of annual births; (2) BMS [breast-milk substitute] companies are competing with each other to market BMS products so that the number of advertisements viewed by families is increased; (3) pro-breastfeeding policies and programs are underresourced and poorly implemented; (4) facility births are high or increasing; (5) high proportions of women work outside the home; and (6) families are likely to have sufficient funds to purchase BMS. (p. 381)

Similary, Phoutthakeo et al. (2014) examined the influence of formula milk promotion via the media from Thailand to Lao People’s Democratic Republic (Lao

PDR), as the two countries share a cultural and linguistic proximity. A total of 1,022 mothers were involved in the cross-sectional survey to determine correlation between media exposure and breastfeeding (Phouthakeo et al., 2014). The study specifically aimed “to measure maternal exposure to the Thai media’s promotion of formula use,” to examine “the association between attitudes towards Thai TV commercials on formula use and EBF [exclusive breastfeeding],” and, “to investigate the media-influenced attitude to formula use and EBF for 6 months” (p. 52). Formula advertisements appearing on Thai TV were found to play a substantial role in decreasing breastfeeding practices among Lao PDR mothers (Phouthakeo et al., 2014). Results of the survey showed that formula commercials shown on Thai TV were one key factor determining breastfeeding practices in Lao PDR. The data on the media exposure were described, as follows:

Most of the participants reported high exposure to the Thai media including TV commercials (89.9 %), logos (76.9%) and TV programmes (73.5%)... Furthermore, many respondents identified that Thai TV commercials were influential to develop positive attitude towards formula use... ...3 variables were found significantly associated with EBF for 6 months: caesarean section as type of delivery...; early initiation of breastfeeding...; and positive attitude towards Thai TV commercials on formula use... (p. 53)

Phouthakeo et al. (2014) then conducted six focus group discussions with a total of 29 Lao mothers and mothers-in-law who had children younger than two years of age at the time of the survey. The study aimed to further explore exposures to the Thai media’s promotion and positive attitude towards formula use. Results demonstrated that, despite the relatively high educational level among the urban mothers, they developed “a positive attitude to formula milk through exposure to the Thai media’s promotion” (p. 54). Mothers were found to have positive attitudes towards formula feeding because of “convenience and superiority in health benefits” conveyed by the formula advertisements

(p. 53). After observing the scientific claims made in formula advertisements, mothers believed that formula makes “a child grows taller, and gain weight, and that it develops their child’s brain better” (p. 53). The study suggested that the scientific claims about commercial formula could be one possible explanation for formula use in educated, health-conscious mothers (Phoutthakeo et al., 2014).

Sobel et al. (2011) showed similar findings on the association between mothers’ exposure to baby formula advertising and formula feeding decisions in the Philippines. This study surveyed a total of 5,219 households and involved 38 mothers in three focus group discussions in both urban and rural areas. Notwithstanding the poverty and other economic challenges in the Philippines, the study found that 41.1% of the infants and young children were fed formula; increased formula use was observed among those with higher levels of education and lower rates of poverty. Moreover, data on formula use, socioeconomic status, and education were presented as follows:

Formula usage was associated with municipality of residence ($p < 0.05$). Around two-thirds (67.2 %) of mothers of formula users had graduated high school versus one-third (32.5 %) of those not using formula ($p < 0.05$). About one-fifth (21.8 %) of formula users lived in a house made with light roofing materials (i.e., low SES) versus 38.2 % of non-formula users ($p < 0.05$). Formula users were on average 1.5 months older than non-users ($p > 0.05$). In multi-logistic regression, formula usage remained associated with education... and municipality... (pp. 1447-1448)

Further, when mothers recalled an advertising message, either from their doctor, mother, or relatives, they were significantly more likely to give formula to their babies. For instance, the findings showed that 59.1% of mothers of young children “recalled an advertisement message content,” and one-sixth of them received a recommendation to use infant formula from a doctor (Sobel et al., 2011, p. 1774). Also, when infant formula was used, the risk of breastfeeding cessation within 12 months was increased 6.4 times

over. When mothers recalled an advertising message, they were “twice, and those who reported a doctor recommended using formula were about four times, as likely to feed their children infant formula” (Sobel et al., p. 1447).

Evidence that marketing of commercial formula affects breastfeeding behaviors was also found by Pries et al. (2016). Involving 498 mothers of children younger than 24 months old, the study indicated that formula promotion was “influential in Phnom Penh mothers’ decisions to use breast-milk substitutes” (p. 48). Greater than half of mothers reported receiving a recommendation to use a commercial formula to substitute breast milk from health professionals, relatives, or friends. Compared with mothers who did not formula feed their babies, those who introduced commercial formula were “3.9 times more likely to currently feed this same child a breast-milk substitute,” suggesting the recommended behavior persisted (p. 39).

Moreover, toddler formula advertisements were targeted at mothers who fail to breastfeed, by evoking mothers’ anxieties about breastfeeding and reinforcing “a perception that infant feeding recommendations are unattainable” and presenting “formula as a healthy alternative to breastfeeding” (Berry et al., 2010, p. 28). Formula advertising positions its products “in competition with breastfeeding, rather than with other brands” (p. 28). Thus, this study suggested that such practices undermine public health messages about infant feeding (Berry et al., 2010).

This irresponsible marketing is considered a main driver for the rapidly growing burden of NCDs. The report indicated a strong association between NCDs and maternal and child health from pregnancy through the duration of breastfeeding, and suggested

that the cost and marketing of unhealthy foods are factors that contribute to the increase of NCD levels in children and vulnerable populations (WHO, 2011).

Maternal Perceptions of Commercial Formula Advertising

Berry, Jones, and Iverson (2010) conducted a qualitative study to investigate how first-time mothers perceived toddler formula print advertisements. Media studies were incorporated in the development of semi-structured interviews to determine whether “toddler milk advertising might function as indirect advertising for infant and follow-on formula” (p. 22). The study also used the encoding/decoding concept within semiotic and sociocultural contexts to examine how texts and graphics used by toddler formula advertisements produce certain ideas or health beliefs in mothers. A total of 15 women were involved in this study, recruited from an antenatal education class in a suburban area north of Sydney (Berry et al., 2010).

Findings clearly showed that toddler formula advertisements appear to be “functioning as de facto advertising for infant and follow-on formula” (Berry et al., 2010, p. 27). On their initial attempts, most women in the study perceived that toddler formula advertisements were intended to promote infant formula, and that formula products “would be properly used in place of breastfeeding” (p. 22). Moreover, despite the term “infant formula” not being found in any of the toddler advertisements, mothers in the study could identify toddler formulas as infant formulas. Thus, the brand identities on these product packages might explain “why so many mothers recognized them as

‘formula’ [for infants]” (p. 23). Such practices were part of a process known as *line extension*, or promoting a product for others, as further explained:

This [line extension] benefit is achieved by increasing the prominence of the logo and name on the entire range of products. Brand features such as logos, graphic, package type, colour, shape and product name are much more salient in toddler milk advertisements than the text that clarifies the appropriate age at which these milks should be offered. This observation lends support to the notion that toddler milk advertising is designed to promote advertisers’ entire line of formula products including infant and follow-on formula. (p. 25)

Berry et al. (2012) examined whether “the perception that toddler milk advertising promotes infant formula is prevalent amongst Australian parents” and “what messages they remembered these advertisements containing” (p. 25). A convenience sample of 439 women with a child younger than five years old was used. Five infant formula pack-shots were shown to the respondents to provide confirmation as to whether respondents believed they had seen infant formula advertised, and certain claims made about it. Findings showed that 92.1% of respondents had seen a formula advertisement; 66.8% of respondents confirmed that they had seen “a formula product suitable for use from birth (infant formula) advertised” (p. 25).

Further, the advertisements for toddler formula were commonly understood to be advertisements for infant formula. Numerous statements on nutrition claims in formula tins were also identified, such as that it contained “Omega-3, iron, or probiotics” (Berry et al., 2012, p. 26). More than half of respondents had seen a formula advertisement claiming that the product “ensures proper growth and development” (p. 26). The advertisements also claimed that the product improves babies’ brain development, makes babies healthy/happy, or strengthens immunity, and that the product was equal to breast milk. Recommendations covered how these advertising messages undermine

breastfeeding promotion and mislead consumers by “minimizing the differences between infant formula and human milk,” which is prohibited by the Code (p. 27). Such advertising messages misrepresented “the weight of available scientific evidence,” as they presented formula as a “healthy, benign alternative to breastfeeding” (p. 27).

Similar to Australia, in Italy and most countries of the European Union, advertisements of infant formula are prohibited, whereas follow-on formula products may be advertised (Cattaneo et al., 2014). Pregnant women’s perceptions of follow-on formula advertisements were observed to assess “how advertisements of follow-on formula for infants aged 6–12 months are presented to and understood by mothers” (p. 324). A three-component multicenter observational method, which included analysis of advertisements, in-depth interviews with a total of 80 pregnant women, and a questionnaire distributed to 562 mothers of children younger than three years old, was applied. Findings showed that legal advertisements of follow-on, or toddler, formula are often misunderstood and perceived by pregnant women and mothers as promoting infant formula, which is forbidden by law (Cattaneo et al., 2014).

Results of this study also demonstrated that all of the advertisements constituted a slogan, an image, and a more or less detailed description of the product (Cattaneo et al., 2014). The slogans were always “parent-oriented, aimed at helping parents solve possible health problems of their babies” such as “colic, difficulty in sleeping or digesting” or at “eliciting good feelings (love, affection), or both (‘only your true love can keep you awake all night’)” (p. 325). Further, such specific nutrition-related references, such as to prebiotics, were often added in advertisement (Cattaneo et al., 2014).

Another important finding of the study was that the majority of pregnant women and mothers had “little knowledge of the different types of formula for different ages that are available on the market” (Cattaneo et al., 2015, p. 327). Women in the study were confused by the different numbers on labels that otherwise “have the same layout and by the undefined age of the infants portrayed in the advertisements” (p. 327). Although their understanding may increase after reading the texts of labels and advertisements, a significant proportion of women still “continue to be confused about the indications of different products” and tend to rely on the advice of health professionals (p. 237). It was concluded that the industry used line-extension methods to market follow-on formula and other breast-milk substitutes to circumvent the law (Cattaneo et al., 2015).

A recent study by Appleton et al. (2018) assessed parents’ formula feeding practices, the factors influencing this practice, and their experiences of seeking or being provided with information, advice, or support for formula feeding. The study involved 24 parents who were initially recruited from an Australian longitudinal cohort study, Baby’s First Foods. A 35-minute phone interview was used to explore how and why parents selected a formula brand and type, and what sources of information, advice, and support about formula and the social environment they used (Appleton et al., 2018).

Results of the study demonstrated that the factors that most strongly influenced parents’ decisions about which formula to use included whether the product was “made in Australia, or that it was labeled organic” (Appleton et al., 2018, p. 3). It also depended on the “availability of a brand, advice from other parents and health professional recommendations” (p. 3). Lastly, it depended on preferences for a “specific type of formula such as ‘hypoallergenic,’” and marketing attributes such as community trust of

the brand (p. 4). Moreover, parents were found to seek advice about formula feeding from both informal and formal sources. Informal sources included “the tin, the internet, family, friends and other mothers,” whereas formal sources included “midwives and doctors at the birth hospital, community maternal and child health nurses, general practitioners, paediatricians and pharmacists” (p. 6).

In addition, Appleton et al. (2018) concluded that formula advertising and marketing messages play an important role in influencing parents to use formula, “particularly the brand and type they choose to use, and the way formula is made up and the amount provided” (p. 8). Although parents in the study were unsure how to interpret the information on the formula’s tin, many parents based their decision on what they thought was most important. The study revealed that the images and text on the tins and in advertisements were highly influential among target parents. Importantly, health claims used in the marketing of formula were “described as informative and influenced the choice of formula” for the parents (p. 8).

Wennberg, Jonsson, Janke, and Hörnsten (2017) studied mothers’ perceptions about breastfeeding and introducing infant formula through online discussion forums. Participants included people who posted their views on two separate Swedish parenting websites. Although the exact number of participants was unknown, the study was able to gather demographic data from both sites, which showed that over 80% of participants were women, around 30 years of age, and either already planning pregnancy, pregnant, or a parent. In total, the study analyzed 370 posts, which mainly discussed how women were balancing between the expectations of others and their own confidence in their parental ability in relation to infant feeding (Wennberg et al., 2017).

Findings showed that breastfeeding was described as natural, whereas infant formula feeding was seen as a synthetic secondary alternative (Wennberg et al., 2017). Recommendations covered a correlation between infant feeding methods and the identity of a mother. Mothers specifically reported having feelings of guilt and shame whenever they were not able to choose to breastfeed. Moreover, the online discussion forums demonstrated that health workers emphasized the image of breastfeeding as a means of being a good mother, and thus caused guilt when women experienced breastfeeding difficulties and used formula (Wennberg et al., 2017).

In Indonesia, a study by Tambunan, Purwanegara, and Indriani (2013) found that health claims of commercial formulas are associated with people's decision to purchase the product. The study focused on the available information, such as health and nutrition claims presented by the baby formula manufacturers. Focus group discussions and surveys were used to explore mothers' perceptions of baby formula, and factors influencing them to purchase a baby formula product. A total of 105 mothers of children aged zero to five years old participated in the study (Tambunan et al., 2013).

Tambunan et al. (2013) found that nutrition content, baby preferences, recommendations from health professionals, and the quality of a product were the most common attributes that mothers considered when purchasing baby formula. Despite the fact that 79% of participants agreed with the statement that "baby formula was not responsible for babies' intelligence" as claimed by the products, mothers perceived baby formula as being a suitable substitute for breast milk (p. 518). This study identified the traditional media as "the most frequently encountered source for information on baby formula," which included TV, newspapers, magazines, and radio broadcasts (p. 516). The

belief that a baby formula has growth benefits was significantly associated with mothers' attitude toward purchasing the formula (Tambunan et al., 2013).

Focus on Indonesia: Breastfeeding Rates and National Policies on Commercial Formula Marketing

Notwithstanding the numerous and salient benefits of breastfeeding, the rates of breastfeeding in Indonesia are still considered low, and in contrast, infant formula is a relatively common feeding practice (Statistics Indonesia [Badan Pusat Statistik—BPS], National Population and Family Planning Board [BKKBN], and Kementerian Kesehatan [Kemenkes—MOH], and ICF International, 2013). National data showed that although more than 94% of all children under the age of two are ever breastfed, only 42% of them were exclusively breastfed for the first six months of life. It was also found that only 37% of babies in the country are appropriately fed based on UNICEF's and the WHO's recommendations for optimal infant and young child feeding practices. It was also indicated that “three in ten children under age 2 months” were being fed using breast milk substitutes (p. 155). Furthermore, the quinquennial national demography health survey demonstrated a decline in the rates of exclusive breastfeeding, from 62% in 1987 to 42% 2013 (Statistic Indonesia et al., 2013).

WHO et al. (2016) consider Indonesia one of the countries that has adopted many legally binding measures, incorporating many provisions of the Code. However, the country has not established a formal monitoring and enforcement mechanism of the legal measures. Thus, Indonesia has partially adopted the Code (WHO et al., 2016).

The national measures only regulate the marketing of all commercial formula products intended for feeding children up to the age of 12 months (Vinje et al., 2017, p. 5). Currently, there are three national legislations covering some provisions of the Code: 1. Health Law No. 36/2009, which has some provisions on exclusive breastfeeding for the first six months of life in the health care setting, 2. A regulation to implement the 2009 Health Law, Government Regulation No. 33/2012, and 3. The Ministry of Health Regulation No. 39/2013 on Infant Formula Milk and other baby products, which have some provisions on the marketing of commercial formula products aimed at children up to the age of 12 months (Vinje et al., 2017).

The Code has stated that “any food being marketed or otherwise presented as a partial or total replacement for breast milk,” falls under the scope of the Code (WHO, 1981, p. 8). Thus, according to the Code, all promotion of products intended and marketed as suitable for feeding children older than 12 months up to the age of 36 months are required to be adequately covered by national regulations. The existing Indonesian regulations cover the marketing of commercial formula, complementary foods, feeding bottles, teats, or pacifiers for 12 months (Government of the Republic of Indonesia [GORI], 2012; Ministry of Health of the Republic of Indonesia [MOHRI], 2013). Specifically, regarding the age range for designated products, the 2012 regulation only covers products that are marketed to infants up to six months of age, whereas the 2013

Ministry of Health regulation covered all products that were marketed to children up to 12 months of age. Further, none of the regulations cover formula for pregnant mothers, which falls within the scope of the Code (WHO et al., 2016).

Both regulations incorporated Article 4 of the Code, having to do with informational and educational materials on infant and young child feeding (GORI, 2012; MOHRI, 2013). The regulations also have some provisions that comply with Article 4, which includes “benefits and superiority of breastfeeding,” “maternal nutrition and preparation for and maintenance of breastfeeding,” “negative effect on breastfeeding of bottle-feeding,” and “difficulty reversing decision not to breastfeed” (WHO et al., 2016, p. 54). However, other information on commercial formula and its products are not covered in the regulation. For example, the regulation does not cover the “social and financial implications,” “health hazards of inappropriate feeding,” and “health hazards of inappropriate [formula] use,” as required by the Code (WHO et al., 2016, p. 54).

With regard to Article 5 of the Code, on the prohibition of the promotion of breast milk substitutes, both regulations prohibit all promotion to the general public through advertising, distribution of samples and gifts, and direct marketing to mothers and pregnant mothers (GORI, 2012; MOHRI, 2013). However, both regulations allow commercial formula advertisements in printed health media upon the approval of the Minister of Health (GORI, 2012; MOHRI, 2013).

Moreover, regarding the regulation on labeling, both regulations clearly prohibit the idealizing of commercial formulas through text or images on product labels and advertisements (GORI, 2012; MOHRI, 2013). Both regulations also incorporate the Code’s clauses about information on labels of designated products, such as a clause on

the recommended age of introduction, messages on the superiority of breastfeeding (only to be used upon the advice of a health professional), preparation instructions, and warnings about pathogenic micro-organisms. However, none of the regulations ban nutrition and health claims, as requested by the Code (WHO et al., 2016, p. 55).

In addition, Indonesia has a government regulation concerning the labeling and advertisement of food No. 69/199, which includes provisions that comply with the Code regarding commercial formula labeling (GORI, 1999). This regulation prohibits any advertisement or promotion to the general public of commercial formula and food products for feeding children up to the age of 12 months (GORI, 1999).

Use of Counter-Marketing to Address Public Health Problems

Kotler (1973) argued that marketing is not limited to creating and maintaining demand. In fact, the concept of marketing includes *un-selling*, a form of de-marketing and counter-marketing that “has as social justification in democracy as does selling” (p. 56). For a situation in which a product is considered unwholesome from the viewpoint of the consumers, the public, or the supplier’s welfare, the strategy of counter-marketing is needed. Counter-marketing is a task of “trying to destroy the demand for something,” or “an attempt to designate the product as intrinsically unwholesome” (p. 48). The designated unwholesome products could be “the organization’s own product” that it tries to discontinue, “a competitor’s product,” or “a third party’s product” that is considered “socially undesirable” (p. 48). In addition, unwholesome demand was described as “a

state in which any positive level of demand is felt to be excessive” due to “undesirable qualities associated with the product” (p. 47).

Counter-marketing can also involve an effort to accomplish the opposite of innovation, as explained by Kotler (1973) below:

Whereas innovation is largely the attempt to add new things to the cultural inventory, [counter-marketing or] unselling is the attempt to eliminate cultural artifacts or habits...Whereas innovation usually ends with the act of adoption, unselling seeks to produce the act of disadoption. In the perspective of innovation theory, unselling may be called the problem of deinnovation. (p. 48)

Kotler (1973) further suggested that different product characteristics facilitate un-selling or counter-marketing, including “relative disadvantage, incommunicability, complexity, indivisibility, and incommunicability” (p. 48). For example, anti-drug groups have sponsored and undertaken numerous campaigns designed to discourage drug use, and anti-smoking groups managed to put pressure on the Surgeon General’s office to pass a law requiring cigarette manufacturers to add a warning label to each cigarette package (p. 48). An un-selling campaign can also be focused on changing behavior or public opinion; for instance, the efforts by peace groups to “un-sell” or “counter-market” the Vietnam War (p. 48).

Similarly, Boddy (2014) pointed to the involvement of other marketing activities, with a goal of countering their marketing effects. Active de-marketing is designed to reduce the demand of a particular product or service. Per Boddy (2014):

Counter-marketing is when attempts are made to reduce the demand for a product or service via the use of proactive marketing measures such as promoting reasons why a product or services should not be used because of, for example, side effects or other effects deemed to be undesirable. (p. 35)

Counter-marketing can be conducted by “either the originating corporation or those who are opposed” with the targeted product (Boddy, 2014, p. 65). An example of

such internally originated counter-marketing is the recall of faulty Toyota cars. In cases like this, the manufacturer may ask its customers to return the products, offering them repair services or a replacement product. Some examples of externally driven counter-marketing include the anti-smoking, anti-drinking, and anti-illegal-drug-use campaigns that counter the marketing practices of the tobacco and alcohol industries, as well as drug dealers. The drives of such counter-marketing campaigns include promoting health, as well as other benefits such as combating “increased rates of crime and of accidents due to drug- and alcohol-related impairment” (p. 65).

Regarding promotional efforts of potentially harmful products, Fox and Kotler (1980) suggested that manufacturers spend significant resources on promotion, while excluding opposing views of the products they sell, and view those who disagree as having “inadequate resources to present the counterposition” (p. 27). Hence, counter-marketing campaigns must involve social marketing efforts “to present the other side of the story and stimulate people to adopt more healthful behavior” (p. 27). The promotion of infant formula in developing countries is an example of a counter-marketing effort directed at baby food manufacturers. For instance, Borden, Nestle, and other infant formula manufacturers were found to aggressively market their products to mothers in Africa, Latin America, and other less developed regions characterized by poverty, low literacy, lack of pure water, and lack of facilities for sterilizing bottles (Fox & Kotler, 1980).

The widely prevalent commercial formula advertisements and promotions have led the Centers for Disease Control and Prevention (CDC) to include counter-marketing as a potential strategy for breastfeeding intervention (Shealy, Li, Benton-Davis, &

Grummer-Strawn, 2004). Counter-marketing is identified as a way to address the marketing efforts by the commercial formula industry and its distributors, which have a negative effect on breastfeeding, by “seeking to limit these companies’ uses of competing imagery and influences in the media and health settings” (p. 35). Counter-marketing, in this case, is “specifically directed at commercial enterprises that compete against breastfeeding and other factors known to have a negative impact on breastfeeding” (Shealy et al., 2005, p. 35).

Palmedo, et al. (2017) conducted a systematic review to examine the potential for using counter-marketing initiatives to reduce the consumption of alcohol or unhealthy food, with the goal of advancing public health research and counter-marketing practices. Counter-marketing was defined as countering “the practices that marketers use to sell unhealthy products” by utilizing health communication approach (p. 120). One strategy included exposing the motives of the producers, then portraying their marketing activities “as outside the boundaries of civilized corporate behavior” (p. 120). Recall from Chapter I how Palmedo et al. (2017) identified eight key components of successful tobacco counter-marketing campaigns and suggested that these components are also effective for campaigns against unhealthy food and alcohol (p. 133).

Counter-Marketing for Smoking Reduction Campaigns

Counter-marketing strategies have been found to be effective in reducing youth smoking rates through numerous programs (Allen et al., 2009). For instance, U.S. campaigns under the Fairness Doctrine from 1967 to 1971, and the Truth Campaigns of Florida, California, and Massachusetts. All of these used media as “an antitobacco

industry approach” that focused on youth (p. 197). Media campaign through television, radio, and billboard advertising were designed to reach both youth and adults. Campaign advertisements focused extensively on “tobacco industry practices and the health effects of tobacco use (p. 198). In addition, the Federal Communication Commission (FCC) Fairness Doctrine required broadcasters to air at least one anti-tobacco public service ad for every three cigarette ads aired (Allen et al., 2009).

Notwithstanding the numerous efforts of the tobacco industry to obstruct the Truth Campaign, including through litigation, the creation of new tobacco products for the youth market, and the appearance of smoking in movies, counter-marketing campaigns were demonstrated “to prevent smoking initiation among at-risk youth” (Allen et al., 2009, p. 209). The success of the campaigns was mainly attributed by its “peer-to-peer message strategy,” “the use of branding,” and “antitobacco industry” (p. 209). Recommendations covered how strong counter-marketing campaigns are needed by the public health community, regardless of threats from the tobacco industry. Further, more research related to the impact of youth exposure to both pro- and antitobacco media campaigns is vitally needed (Allen et al., 2009).

Niederdeppe, Farrelly, and Haviland (2004) provided evidence of a successful tobacco counter-marketing campaign directed at teens in Florida. The Florida Truth counter-marketing campaign began in 1998 and focused on addressing “the tobacco industry’s purposeful attempts” to market cigarettes to teens using counter-industry strategy (p. 255). More specifically, the campaign was designed to highlight “the industry denial of cigarettes’ addictive and deadly effects” by utilizing counter-advertising practices (p. 255). To gauge the effectiveness of the Truth Campaign, the researchers

used data from the Legacy Media Tracking Survey (LMTS), a random-digit-dialed telephone survey of Florida teens aged 12 to 17 (N = 1,097), and then compared it with national data from states without established comprehensive tobacco control programs (N = 6,381). The results of the study demonstrated that “smoking intentions and behavior were substantially lower among Florida teens” (p. 256). Florida teens also had “substantially higher levels of ‘truth’ and antitobacco group awareness than their national counterparts” (p. 255). Moreover, Florida teens had less favorable views of the tobacco industry than their peers nationwide (Niederdeppe et al., 2004, p. 255).

Farrelly et al. (2002) examined the use of counter-marketing in the “truth” campaign and Philip Morris’s “Think. Don’t Smoke” campaign in influencing youths’ attitudes, beliefs, and intentions toward tobacco. The study demonstrated that the use of counter-marketing campaigns has been an effective strategy for changing attitudes, beliefs, and intentions among youth (p. 905). A two-stage stratified-design surveys was used to measure exposure to “environmental tobacco smoke, access to tobacco products, knowledge and attitudes about tobacco, awareness of pro- and anti-tobacco advertising, and self-reported tobacco use and intentions” (p. 902). The study first survey involved a total sample size of 6,897 youths (3,439 12- to 17-year-olds and 3,458 18- to 24-year-olds), and the second survey involved 10,692 youths (6,233 12- to 17-year-olds, and 4,459 18- to 24-year-olds) (p. 903). The surveys contained questions designed to measure youths’ awareness of television advertisements from “truth” and “Think. Don’t Smoke” (Farrelly, et al., 2002, p. 902).

Results of the study demonstrated that, 10 months into the “truth” campaign, tobacco was more prominent in the minds of youths. Indeed, the “truth” campaign has

been shown to have resonated more with young people than “Think. Don’t Smoke” (Farrelly et al., 2002, p. 905). Moreover, compared with “Think. Don’t Smoke,” exposure to the “truth” campaign appeared “to have changed the way youths think about tobacco” (p. 905). The percentage of youths who held anti-tobacco attitudes and beliefs also increased “from 6.6% to 26.4% during the first 10 months of the campaign” (p. 905). The study further highlighted some of the following specific changes seen in participants:

The attitudes that changed most dramatically were ‘taking a stand against smoking is important,’ ‘not smoking is a way to express independence,’ and ‘cigarette companies deny that cigarettes cause cancer and other harmful diseases.’ (p. 905)

These attitudinal changes were found to be “associated with youths’ exposure to the “truth” campaign” (Farrelly, et al., 2002, p. 905). Also, that truth’s counter-marketing advertisements often challenged the tobacco industry by conveying the message that “they [the industry] market a product that kills” (p. 905). In addition, finding showed that exposure to Philip Morris’s “Think. Don’t Smoke” campaign “engendered more favorable feelings toward the tobacco industry” than among those not exposed to “Think. Don’t Smoke” advertisements (Farrelly et al., 2002, p. 905).

Another study by Farrelly, Nonnemaker, Davis, and Hussin (2009) found that the “truth” campaign was “a viable strategy for preventing youth smoking” (p. 379). The influence of the national “truth” campaign on smoking initiation by using a quasi-experimental design was examined. Data from a total of 8,904 participants aged 12 to 17 years, who were surveyed annually from 1997 to 2004, was analyzed in 2008. The objective was to study the exposure to antismoking messages that were aired on selected TV networks, as well as TV programs popular with youth “to relate in smoking initiation” (p. 379). Findings showed that “exposure to the truth campaign is associated

with a decreased risk of smoking initiation” (p. 381). Further, exposure to the Truth Campaign had an independent influence “on smoking initiation above and beyond multiple individual, media market, and state-level influences” (p. 381). As a result, nationally, smoking initiation among adolescents from 2000 to 2004 was decreased by an estimated 450,000 people. Additionally, there was “one fewer adolescent initiating smoking for every \$544 spent on the campaign during its first 4 years” (p. 383).

Theories Guiding the Research

A number of theories provided a framework for the present study. These theories are reviewed in this section.

Social Cognitive Theory: Self-efficacy

Albert Bandura’s social cognitive theory (SCT) started as the *social learning theory* (SLT) in the 1960s. Bandura (1986) modified the SLT into the SCT, positing that learning occurs in a social context through observation of a dynamic and reciprocal interaction of the person, environment, and behavior. Bandura (1986) further explains SCT, as follows:

Social cognitive theory embraces an interactional model of causation in which environmental events, personal factors, and behavior all operate as interacting determinants of each other. Reciprocal causation provides people with opportunities as well as sets limit of self-direction. (p. xi)

Bandura (1986) believed that “knowledge, transformational operations, and constituent skills are necessary,” but that they alone are “insufficient for accomplished

performances” (p. 390). Indeed, self-belief of efficacy mediates the relationship between knowledge and action. Self-efficacy is defined as “people’s judgments of their capabilities to organize and execute courses of action required to attaining designated types of performances” (p. 391). How people judge their own capabilities and perceptions of efficacy affect their intention and behavior (Bandura, 1986).

The concept of self-efficacy is utilized in the present research to explore the level of confidence of study participants to perform specific behaviors within a counter-marketing campaign, including countering infant formula marketing messages. The self-efficacy concept has been shown to predict the initiation and duration of various health-promoting behaviors (Brockway, Benzies, & Hayden, 2017). Hence, the concept is used as a basis for determining mothers’ intention to be advocates of commercial formula counter-marketing messages by creating empowerment profiles using self-efficacy and the stages of change. Moreover, relevant to the present study, self-efficacy theory has been shown to be successful when applied in the development and implementation of a tobacco counter-marketing program for youth, the Truth Campaign (Allen, Vallone, Vargyas, & Heaton, 2009). The Truth Campaign found that youth who perceived a greater degree of self-efficacy after seeing the counter-marketing education materials had higher cognition as compared with those who did not (Wehbe, Basil, & Basil, 2017).

The Transtheoretical Model: Stages of Change

The transtheoretical model (TTM) is “an integrative framework for understanding the process of behavior change whether that change involves the initiation, the modification or the cessation of a particular behavior” (DiClemente & Velazquez, 2002,

p. 201). One core concept of the transtheoretical model is the existence of stages of change, which involves a series of incremental phases from an initial pre-contemplation stage, to contemplation, then to preparation, action, and to maintenance, as well as potentially relapse (DiClemente & Velazquez, 2002).

Prochaska and DiClemente (1984) described pre-contemplation as a stage in which people are “unaware of having problems” or “not thinking seriously about changing” (p. 24). When moving to the contemplation stage, contemplators “become aware that a personal problem exists” and they are eager to talk about their problems (p. 27). In this stage, contemplators are looking for adequate information about ways of solving their problems, and are seriously thinking about changing, however, they have not yet made any commitment to doing so (Prochaska & DiClemente, 1984).

When it comes to the preparation stage, intention to take action in the immediate future becomes clearer (Prochaska & Velicer, 1997). People who are in the stage of preparation have “a plan of action” toward behavior change, such as “joining a health education class, consulting a counselor, talking to their physician, buying a self-help book, or relying on a self-change approach” (p. 39). Moving to the action stage, people’s self-esteem tends to be high, because they are acting on their belief in personal self-efficacy. However, according to Prochaska and DiClemente (1982), such enthusiasm for action can only last for about one to six months.

During the next stage, maintenance, “people work to continue the gain attained during action and to prevent relapse to their more troubled level of functioning” (Prochaska & DiClemente, 1984, p. 28). The maintenance stage tends to be a lengthy one; it could take at least six months to years, or even a lifetime. When a person is still in

the maintenance stage, “the risk of relapse is real,” and, further, at any time during this stage the person will “experience the anxiety or stress” that can lead to relapse (p. 284). When relapse occurs, some of the relapsers will “re-enter the contemplation stage while others will struggle to become precontemplators again” (Prochaska & DiClemente, 1982, p. 284).

The stages of change provide a comprehensive framework for the current study. In particular, the framework helps to determine women’s readiness to be commercial formula counter-marketing advocates through two main interventions: by exploring mothers’ knowledge of the infant feeding methods they are using, and by introducing a commercial formula counter-marketing booklet.

Motivational Interviewing

Miller and Rollnick (2013) described the layperson’s definition of motivational interviewing as “a collaborative conversation style for strengthening a person’s own motivation and commitment to change” (p. 12). The technical definition of motivational interviewing is described as “a collaborative, goal-oriented style of communication with particular attention to the language of change” (p. 29). The goal of motivational interviewing is for a person to change his or her behavior. Thus, motivational interviewing sees clients have vital expertise that is complementary to the practitioners, which is activated through collaborative conversations (Miller & Rollnick, 2013).

DiClemente and Velasquez (2002) found that motivational interviewing helps individuals complete multiple tasks required in each of the five stages of change. For clients who are in both precontemplation and contemplation stages who do not want to be

lectured and are resistant to make changes, motivational interviewing facilitates clients “in examining their own particular situation” and “making decisions about change” (p. 203). In the later changes, motivational interviewing has also been found to be very effective in encouraging clients to “prepare for change, take action, and maintain the change over time” (p. 203). Further, motivational interviewing approaches “can help increase self-efficacy” and reinforce clients' accomplishments in the action and maintenance stages (DiClemente & Velasquez, 2002, p. 203).

Miller and Rollnick (2013) stated that most cognitive-behavioral therapies are designed for those who are in the action stage (i.e., when a client is ready to change). Further, since motivational interviewing is a style for dialogues about change, it can be integrated with other specific intervention methods. Here motivational interviewing “can be more than a prelude to other treatment,” and is applicable throughout the stages of change “to facilitate engagement, focus, and motivation, and to adjust planning” when challenges arise (p. 300). Additionally, motivational interviewing is compatible with numerous clinical practices such as cognitive-behavioral procedures as well as educational, pharmacological, public health and case management (Miller & Rollnick, 2013).

Recall from Chapter I that Wallace (2019) introduced the use of the *mnemonic* CDMN (concerns, discrepancy, menu of options, and next steps) to deploy brief motivational interviewing when working with clients. The first step, *concerns* (C) is for asking clients about their concerns about any behavior. Next is *developing discrepancy* (D) to generate clients' pros and cons of changing or not changing, including via a decisional balance exercise, and pointing out discrepancies between the client's

cognitions, goals or behaviors versus other cognitions, goals or behaviors. The third step is working with the client to create a *menu of options* (M) as to the types of treatment or problem solving available to the client. Lastly, asking the client about *next steps* (N) or what the client feels ready to do now, as well as potentially later (Wallace, 2019).

Wallace (2019) suggests that some clients (or mothers) often begin to have internal motivation to change as a result of receiving health education, assessment findings from a professional, or merely from being asked questions about their behavior using motivational interviewing, or as part of the mnemonic acronym CDMN within brief motivational interviewing (Miller & Rollnick, 2013; Wallace, 2019). Later in the future, the use of CDMN may correspond to how clients progress across Prochaska and DiClemente's (1983) stages of change (Wallace, 2019). Wallace's (2019) CDMN has been of value in numerous field of works such as in health education, community health education, and public health, as well as in counseling and clinical psychology, nursing, and K-12 education.

Health Communications

Schiavo (2013) suggested that health communication is an increasingly prominent field, not only in the public health area, but also the non-profit and commercial sectors. It draws from numerous disciplines, including health education, marketing, social marketing, and mass and speech communication. Deriving from the literal meaning of communication, health communication should be based on "a two-way exchange of information," and should be accessible and create mutual feelings of understanding among the communicators and intended audiences (p. 4). Further, it should play a role as

a connecting door that allows particular health interventions to reach intended audiences. Thus, health communication points to the important role in improving individual and public health outcomes (Schiavo, 2013).

Health communication is used to influence, motivate, and support individuals, communities, health care professionals, policymakers, or special groups about important health issues (Schiavo, 2013). Importantly, health communication seeks to influence and engage individuals and communities “to improve health outcomes by sharing health-related information” (p. 5). Therefore, health communication requires adequate and an in-depth understanding of “the needs, beliefs, taboos, attitudes, lifestyle, and social norms” of all intended communication audiences (p. 6). In addition, health communication should support and sustain change. Thus, the following new definition of health communication emerges:

Health communication is a multifaceted and multidisciplinary approach to reach different audiences and share health-related information with the goal of influencing, engaging, and supporting individuals, communities, health professionals, special groups, policymakers and the public to champion, introduce, adopt, or sustain a behavior, practice, or policy that will ultimately improve health outcomes. (p. 7)

The National Cancer Institute and the CDC defined health communication as the use of communication strategies “to inform and influence individual community decisions that enhance health” (USDHHS, 2002, p. 2). Health communication is not only about the development of messages and material products, but involves research-based strategies for planning and creating health campaigns. It must also be based on “the needs and perceptions of the intended audience” (p. 11). Further, health communication programs potentially influence change among “individuals and also in organizations, communities, and society as a whole” (p. 3).

Health communication must not only be perceived as a skill, but also as science and analysis as a whole (Benhardt, 2004). Promoting public health requires both sound science and effective health communication. Further, health communication is defined as a “scientific development, strategic dissemination, and critical evaluation of relevant, accurate, accessible, and understandable health information” that is communicated to and from intended audiences “to advance the health of the public” (p. 2051).

Conclusion

This chapter provided a literature review that was relevant to this dissertation. Specifically, this chapter presented literature on the following topics: 1. global sales of commercial formula; 2. the WHO International Code of Marketing of Breast-milk Substitutes (the Code); 3. overview of the global implementation of the Code of Marketing of Breast-milk Substitutes; 4. global pattern of pervasive marketing of commercial Formula; 5. insufficient evidence for marketing claims for commercial formula; 6. commercial formula marketing and negative effects on breastfeeding; 7. maternal Perceptions of Commercial Formula Advertising; 8. breastfeeding rates and national policies on commercial formula marketing in Indonesia; 9. use of counter-marketing to address public health problems; and, 10. theories guiding the research

Chapter III will describe the methods of this study.

Chapter III

METHODS

This chapter describes the methods and procedures of the present study. In particular, this chapter will present on the following topics: (1) an overview of the study design and procedures; (2) a description of study participants; (3) a description of the research instruments; and, (3) the treatment of data.

Overview of Study Design and Procedures

The study employed a pre-and post study design, given the intent to evaluate a new training. The study utilized pre-and post-training surveys administered to a convenience sample of breastfeeding educators and counselors in two sites in Indonesia.

The study design was comprised of three distinct phases. Phase I consisted of the development of the study measures and instruments, which were comprised of a counter-marketing commercial formula continuing education module and booklet (i.e., *The Training Manual for Peer Educators and Advocates in A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation*) and a pre-and post-training survey. Phase II was four weeks of field research in two different cities in Indonesia for the arrangement and carrying out of the training. Procedures of the training consisted of volunteers attending a 7-hour, one-day, in person continuing

education training, including 15 – 30 minutes for completing a pre- and post-survey. Evaluation of the counter-marketing continuing education module and the training relied upon the use of mixed methods via a quantitative survey and qualitative (open-ended) questions at the end of the training. The Principal Investigator served as the training leader in this present study. Phase III consisted of qualitative and quantitative data analysis.

IRB Approval

The Institutional Review Board (IRB) of Teacher College, Columbia University approved this study on December 31st, 2018. The IRB-approved protocol number of this study is 19-129, under the category of exempt from review. The data collection of this study did not start until IRB approval was received. See Appendix A: IRB Approval Letter.

The Counter-marketing Education Training Manual Development

The development of the counter-marketing educational training manual was informed by a selective, ongoing literature review of scientific peer-reviewed journal articles using different platforms (i.e., Google Scholar, Columbia University Library/CLIO) and grey literature (i.e., WHO or UNICEF's guidelines and reports, CDC documents, NGO reports, guidelines, and a documentary campaign) under the supervision of Dr. Barbara C. Wallace, Professor of Health Education, Department of Health and Behavior Studies, Teachers College, Columbia University. More specifically,

the training manual was developed following the peer-education and community health worker modules that were previously designed to empower and engage others in behavior changes (Wallace, 2005; Wallace, 2014).

Also, following the work of Wallace (2019) and Miller and Rollnick (2013), the motivational interviewing style was incorporated into the education manual to help propel breastfeeding educators and counselors across the stages of change toward taking action to engage in counter-marketing campaign strategies.

As shown in Appendix H, the result was a final training manual that covered the following topics: 1) Breastfeeding and Formula feeding: the evidence-based information; 2) Advocate for Health Seek for Policy Change; 3) Using Counter-marketing and Counter-marketing Campaigns: Powerful Tools for Use by Advocates for Health; and, 4) Brief Motivational Interviewing. Moreover, other topics were also covered in the process, as follows: general information about optimal breastfeeding and its challenges; breast milk versus commercial formula composition; and, claims versus facts about commercial formula advertising messages.

Further, the design and layout of the manual were done by the dissertation sponsor, Barbara C. Wallace, Ph.D., Professor of Health Education, Director of the Research Group on Disparities in Health (RGDH), Co-Director of the Center for Health Equity and Urban Science Education (CHEUSE), Department of Health and Behavior Studies, Teachers College, Columbia University. In this regard, both the RGDH and CHEUSE are also listed as sponsors in the Training Manual, given this extensive work on the design, layout and editing of the manual. One may click the link to the Training Manual in Appendix H to view the sponsors and content.

Lastly, the Principal Investigator translated the content of the education training manual into Bahasa Indonesia, the local language that was used for the training. Thus, in Appendix H, one can click the link to the Training Manual that is available in Bahasa Indonesia.

Subject Recruitment

Recruitment of the participants for the training in Indonesia was done with the assistance of local sponsors in Indonesia, listed as follows, while a longer description appears in Appendix I (*About the Local Sponsors of the Study*):

- **The Indonesia Maternal and Child Health Advocacy Group**, as a civil society coalition focused on improving the health status of Indonesian mothers, young women, infants, and young children.
- **The Indonesian Breastfeeding Counselors' Association**, as a breastfeeding or lactation counselor-based organization that aim to increase the knowledge and competency of Indonesian Breastfeeding Counselors.
- **The Indonesian Breastfeeding Mothers' Association**, as a community-based peer support group for mothers aimed at raising awareness of the importance of breastfeeding in Indonesia.

Each provider disseminated recruitment flyers via posting on the provider websites, an internal mailing list, social media, as well as in the provider's office – following the standard research protocol of Professor Barbara Wallace's (Director) Research Group on Disparities in Health (RGDH)—of Teachers College, Columbia University. (See Appendix B: Recruitment Flyer)

Inclusion/Exclusion Criteria

The participants screening questions determined their eligibility for participation (Appendix E), as follows:

1. Are you able to speak and read Indonesian on a secondary school level?

☐ Yes ☐ No

2. Were you trained as a breastfeeding educator or counselor?

☐ Yes ☐ No

3. Are you willing to participate in a 7-hour in person continuing education training session?

☐ Yes ☐ No

THANK YOU!

All participants who submitted an interest in joining the study both via email and/ the WhatsApp chat were listed and organized into two different training schedules. One of the training was conducted in Jakarta and the other in Yogyakarta. Each participant then received a confirmation email containing of the date and location of the training.

Incentives for Participation

Participants received no payment for participation in the study. However, the Principal Investigator provided refreshments and lunch at the training.

Other Study Procedures

Each participant who had expressed an interest in the study was invited to attend a 7-hour one-day training workshop in the city where she/he lived. At the beginning of the training each participant filled out a pre-paper survey; and this was followed by a post-paper survey at the end of the training. Immediately after the training started, participants read and signed informed consent documents and read their participants rights (See Appendices D and F). Then, participants were asked to fill out a brief demographic and pre-training paper survey. These procedures required about 7-15 minutes to complete. Next, they attended the counter-marketing continuing education training for about seven hours, including breaks for snack and lunch. After all training sessions were completed, participants were asked to fill out the post-training paper survey for about 10-15 minutes.

Further, Qualtrics technology was selected for creating the survey used for analyzing and evaluating the counter-marketing continuing education module and training. After conducting each of the training sessions, the Principal Investigator manually entered all of the participants' survey data into Qualtrics to make it easier to analyze. The Qualtrics technology permitted the creation of a survey link that could be accessed through Teachers College's Columbia system at https://tccolumbia.qualtrics.com/jfe/form/SV_%203IU3eNeI4o8GXI1. Next, the data file was transferred directly into SPSS 25.0 and analyzed by using SPSS 25.0. Data collection for the study was completed by the end of January 2019.

Confidentiality Procedures: Paper Survey

For the paper survey, participants created a personal code. All participants were asked to create their personal code as answers to 4 questions presented exactly the same way at the beginning of both pre- and post-training questionnaires. The personal code allows matching each participant's before- and after-training questionnaires without using any participant identifiers. All paper surveys were shredded and destroyed before the Principal Investigator left Indonesia, after they were transferred into Qualtrics. The participants' signed informed consents and participants' rights forms were transported to the U.S. in a locked briefcase, and then transferred to a locked file cabinet in a locked office where they will remain stored for five years.

The Translation Process

All English research instruments were translated into Bahasa Indonesia by the Principal Investigator using a forward-translation method. A forward translation method involved only one translator (i.e. Principal Investigator, who is a native Indonesian speaker) who is familiar with terminologies of the area covered by the study instrument. The detailed of the translation steps were, as follows:

- First, all materials in English (i.e. informed consent, participant's rights, recruitment email, recruitment flyer, screening tool for the study, surveys, and the module) were conceptually and equivalently translated into Bahasa Indonesia sentence by sentence by considering the definition of the original term and attempting to translate it in the most appropriate way.

- Second, specific terminologies, phrases, or clauses used in the English materials were searched, next making sure that those terminologies were translated into accurate, equivalent, and appropriate terms in Bahasa Indonesia. The last step was to make sure that all of the translation was linguistically and culturally appropriate.

Description of Study Participants

A total of 112 breastfeeding educators and counselors responded to the recruitment flyer. After confirming their availability according to the schedule of the training, in the city where she or he lived, 101 participants completed the consent and participated in the study. A total of 99 participants completed the entire study, consisting of 43 who completed both in the pre- and post-survey and attended the training in Jakarta, Indonesia; and, 56 who did so in Yogyakarta, Indonesia.

Therefore, this study recruited a convenience sample of Indonesian breastfeeding educators and counselors ($N = 99$) who resided in Jakarta and Yogyakarta and were at least able to speak and read Indonesian at the secondary level and were interested in joining a study on counter-marketing.

Description of the Research Instrumentation

The measures and instruments in this study were developed under the supervision of Professor Barbara Wallace, as part of the activities of the Research Group on Disparities in Health (RGDH). Some of the subscales included in this study were adopted from prior research studies conducted by fellows of the RGDH. This section describes each scale in detail (See Appendix F, Study Survey).

Part I: Basic Demographics (BD-7)

This scale was adapted from an original scale, Basic Demographics (BD-10), which was developed by Professor Barbara Wallace for use in previous studies of the RGDH. Professor Barbara Wallace and the Principal Investigator adapted the original scale for use in this study. The 7-item scale used in this study obtained the demographic information of the breastfeeding educator and counselor participants in the following areas: gender, age, marital status, employment, income, education, and residence.

Part II: Before the Training: Rating of My Knowledge (BT-MK-1)

Professor Barbara Wallace and the Principal Investigator created the one-item scale in this study. The knowledge scale obtained participants' self-ratings of their knowledge about counter-marketing—specifically what it is, what it involves, and counter-marketing campaigns—on a 6-point Likert-type scale ranging from “1-Very

Poor” to “6-Excellent.” The scale permitted the calculation of mean score and standard deviation.

Part III: Before-Training: Stage of Change, Self-Efficacy, Knowledge, and Motivation Levels (BT-SOC-SE-K-M-4)

This scale was designed by Professor Barbara Wallace and the Principal Investigator to assess stages of change, self-efficacy, knowledge and motivation levels for performing four key talking behaviors: 1) talking to expectant and new mothers about their reasons for breastfeeding their infant, and all of the benefits for their infant; 2) talking to expectant and new mothers about corporations’ inappropriate and aggressive marketing of commercial formula and other breast milk substitutes; 3) talking to expectant and new mothers about how the aggressive marketing of commercial formula and other breast milk substitutes includes billboards (and television ads) with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula; and, 4) talking to expectant and new mothers about the risks of becoming dependent on expensive commercial formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant.

Descriptive statistics were used to calculate and provide both the pre-training and post-training scores for four behaviors described. Specifically, as questions were posed about the 4 behaviors, above, the present (BT-SOC-SE-K-M-4) was design to take those answers and generate four separate subscales that measure as follows: Stages of Change (BT-SOC-4), Self-Efficacy (BT-SE-4), Knowledge (BT-K-4), and Motivation (BT-M-4).

Scoring for the Before-Training Stage of Change (BT-SOC-4). In this manner, first, the BT-SOC-4 assessed the stage of change for each of the four behaviors of interest, using the Likert scale of 1 to 5, as follows:

- 1=**precontemplation** stage—I am not thinking of doing this behavior at all;
- 2=**contemplation** stage—I am thinking about doing this behavior;
- 3=**preparation** stage—I am preparing to do this behavior;
- 4=**action** stage—I have been doing this behavior for **less than six (6) months**;
- 5=**maintenance** stage—I have been doing this behavior for **more than six (6) months**

In the present study, the Cronbach's Alpha for the BT-SOC-4 was .755, which indicated adequate internal consistency. In addition, a Global Mean Stage of Change score was calculated incorporating the scores for each subscale on all four behaviors.

Scoring for the Before-Training Self-Efficacy (BT-SE-4). Second, the BT-SE-4 assessed the confidence level of the four behaviors of interest. The scoring was based on a Likert scale with 1 for the lowest existent self-efficacy and 6 for the highest self-efficacy level, or 1 to 6, as follows:

- 1=lowest score for **0% confident**;
- 2=very low score for **20% confident**;
- 3=somewhat low score for **40% confident**;
- 4=moderately high score for **60% confident**;
- 5=high score for **80% confident**;
- 6=very high score for **100% confident**.

In the present study, the Cronbach's Alpha for the BT-SE-4 was .866, which indicated very good internal consistency. In addition, a Global Mean Self-Efficacy score was calculated incorporating the scores for each subscale on all four behaviors.

Scoring for the Before-Training Knowledge (BT-K-4). This subscale assessed the knowledge level of the four behaviors of interest. The scoring was based on a Likert scale of 0 to 7, as follows:

- 0=**non-existent (none at all)**
- 1=**extremely low**
- 2=**very low**
- 3=**low**
- 4=**moderate**
- 5=**high**
- 6=**very high**
- 7=**extremely high**

In the present study, the Cronbach's Alpha for the BT-K-4 was .845, which indicated very good internal consistency. In addition, a Global Mean Knowledge score was calculated incorporating the scores for each subscale on all four behaviors.

Scoring for the Before-Training Motivation (BT-SE-4). This subscale assessed the motivation of each of the four behaviors of interest. The scoring was based on a Likert scale of 0 to 7, as follows:

- 0=**non-existent (none at all)**
- 1=**extremely low**
- 2=**very low**
- 3=**low**
- 4=**moderate**
- 5=**high**
- 6=**very high**
- 7=**extremely high**

In this present study, the Cronbach's Alpha for the BT-M-4 was .765, which indicated adequate internal consistency. In addition, a Global Mean Motivation score was calculated incorporating the scores for each subscale on all four behaviors.

Part IV: After-Training: Rating of My Knowledge (AT-MK-1)

Immediately after participants finished attending the 7-hour one-day training, they took to the survey to rate their knowledge about counter-marketing. Professor Barbara

Wallace and the Principal Investigator created this one-item scale in this study. The knowledge scale obtained participants' self-ratings of their knowledge about counter-marketing —specifically what it is, what it involves, and information about counter-marketing campaigns – on a 6-point Likert-type scale ranging from “1-Very Poor” to “6-Excellent.” The scale permitted the calculation of the mean score, minimum, maximum, and its standard deviation. During data analysis, knowledge about counter-marketing was treated as a continuous independent variable.

Part V: After-Training: Stage of Change, Self-Efficacy, Knowledge, and Motivation Levels (AT-SOC-SE-K-M-4)

After-training scales for the Stage of Change, Self-Efficacy, Knowledge, and Motivation (i.e. AT-SOC-SE-K-M-4) used the same scales from the before-training scales: i.e. see above the section, Part III: Before-Training: Stage of Change, Self-Efficacy, Knowledge, and Motivation Levels (BT-SOC-SE-K-M-4). The above section describes the scoring of the present After-Training version, which is the same as the Before-Training version. Of note, the Cronbach Alphas were, as follows, for the 4 subscales of the AT-SOC-SE-K-M-4: for the After-Training Stage of Change (AT-SOC-4) Cronbach's Alpha = .801, which indicated good internal consistency; for the After-Training Self-Efficacy (AT-SE-4) Cronbach's Alpha = .853, which indicated very good internal consistency; for the After-Training Knowledge (AT-K-4) Cronbach's Alpha = .896, which indicated very good internal consistency; and, for the After-Training Motivation (AT-M-4) Cronbach's Alpha = .793, which indicated good internal consistency.

Part VI: Self-Rating for Participating in the Campaign—Stage of Change, Self-Efficacy, Knowledge and Motivation Levels (SR-PC-SOC-SE-K-M-4)

This scale was designed by Professor Barbara Wallace and the Principal Investigation to assess stages of change, self-efficacy, knowledge, and motivation levels for performing the behavior of taking an active role in the campaign—i.e. *A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation*.

Scoring for the Self-Rating for Participating in the Campaign—Stage of Change (SR-PC-SOC-1). The Likert scale of 1 to 5 was used, as follows:

- 1=**precontemplation** stage—I am not thinking of doing this behavior at all;
- 2=**contemplation** stage—I am thinking about doing this behavior;
- 3=**preparation** stage—I am preparing to do this behavior;
- 4=**action** stage—I have been doing this behavior for **less than six (6) months**;
- 5=**maintenance** stage—I have been doing this behavior for **more than six (6) months**

Scoring for the Self-Rating for Participating in the Campaign—Self-Efficacy (SR-PC-SE-1). The scoring was on a Likert scale from 1 to 6, as follows:

- 1=lowest score for **0% confident**;
- 2=very low score for **20% confident**;
- 3=somewhat low score for **40% confident**;
- 4=moderately high score for **60% confident**;
- 5=high score for **80% confident**;
- 6=very high score for **100% confident**.

Scoring for the Self-Rating for Participating in the Campaign—Knowledge (SR-PC-K-1). This subscale was based on a Likert scale of 0 to 7, as follows:

- 0=**non-existent (none at all)**
- 1=**extremely low**
- 2=**very low**
- 3=**low**
- 4=**moderate**

5=**high**
 6=**very high**
 7=**extremely high**

Scoring for the Self-Rating for Participating in the Campaign—Motivation

(SR-PC-M-1). This subscale was based on a Likert scale of 0 to 7, as follows:

0=**non-existent (none at all)**
 1=**extremely low**
 2=**very low**
 3=**low**
 4=**moderate**
 5=**high**
 6=**very high**
 7=**extremely high**

Part VII: Dose of Exposure and Rating the Continuing Education Module (DE-R-CEM-1)

After participating in the 7-hour in-person training, participants were asked to report their dose of exposure to the training, and how to rate the training session, training manual, and trainer. Professor Barbara C. Wallace developed this scale for use by RGDH fellows.

Scoring for Dose of Exposure (DE-1). This subscale assessed the dose of exposure to the training. The Likert scale captured participants' attendances at the 7-hour training, as follows:

4=**All of the training session**
 3=**Most of the training session**
 2=**Some of the training session**
 1=**None of the training**

Scoring for Training Rating (TR-1). This subscale assessed participants' assessment of the training, as follows:

- 1=**Very Poor**
- 2=**Poor**
- 3=**Fair**
- 4=**Good**
- 5=**Very Good**
- 6=**Excellent**

Scoring for the Training Manual Rating (TM-R-1). This subscale assessed participants' assessment of the training manual, as follows:

- 1=**Very Poor**
- 2=**Poor**
- 3=**Fair**
- 4=**Good**
- 5=**Very Good**
- 6=**Excellent**

Scoring for the Training Leader (TL-R-1). This subscale assessed participants' assessment of the training leader, as follows:

- 1=**Very Poor**
- 2=**Poor**
- 3=**Fair**
- 4=**Good**
- 5=**Very Good**
- 6=**Excellent**

Part VIII: Open Sharing (OS-4).

This scale tool involved a series of open-ended questions to provide qualitative data. This tool asked participants to share their thoughts with regards to the training. The 4-question set was created by Professor Barbara Wallace and the Principal Investigator, consisting of open-ended questions, as follows:

1. What are the strengths and weaknesses of training?
2. How could it be improved?
3. What was the impact of the training on you?
4. What other recommendations or comments do you have to share?

These questions were analyzed as a body of qualitative data, giving rise to emergent themes.

Treatment of the Data

Data Management

After the completion of the training, the Principal Investigator manually entered all participants' paper survey data into Qualtrics. Once the data entry was completed, the dataset was transferred from Qualtrics into SPSS 25.0 and analyzed using SPSS 25.0.

Data Analysis Plan

Given a convenience sample of volunteers who are breastfeeding educators and counselors in Indonesia (N=99) who completed the new 7-hour in-person training module, conducted in Indonesian by the Principal Investigator, the study answered the following research questions—using the following *data analysis plans* located under each research question:

1. What were their demographic characteristics?

Part I: Basic Demographics (BD-7)

Data Analysis: analyzed via descriptive statistics, including means, standard deviations, frequencies, and percentages

2. Before the 7 hour in-person training, what were their self-rating for level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns?

Part II: Before the Training: Rating of My Knowledge (BT-MK-1)

Data Analysis: analyzed via descriptive statistics, including means, standard deviations, frequencies, and percentages

3. Before the 7 hour in-person training, what were their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [1- *the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant*; 2- *corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes*; 3- *the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula*; 4- *the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant*)]

Part III: Before the Training: Stage of Change, Self-Efficacy, Knowledge, and Motivation Levels (BT-SOC-SE-K-M-4)

Data Analysis: analyzed via descriptive statistics, including means, standard deviations, frequencies, and percentages

4. After the 7 hour in-person training, what were their self-rating for level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns?

Part IV: After the Training: Rating of My Knowledge (AT-MK-1)

Data Analysis: analyzed via descriptive statistics, including means, standard deviations, frequencies, and percentages

5. After the 7 hour in-person training, what were their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [1- *the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant*; 2- *corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes*; 3- *the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula*; 4- *the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant*)]

Part V: After the Training: Stage of Change, Self-Efficacy, Knowledge, and Motivation Levels (AT-SOC-SE-K-M-4)

Data Analysis: analyzed via descriptive statistics, including means, standard deviations, frequencies, and percentages

6. After the 7 hour in-person training, regarding the new counter-marketing campaign—*A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation*, what were their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of taking an active role in the campaign.

Part VI: Self-Rating for Participating in the Campaign—Stage of Change, Self-Efficacy, Knowledge, and Motivation Levels (SR-P-C-SOC-SE-K-M-4)

Data Analysis: analyzed via descriptive statistics, including means, standard deviations, frequencies, and percentages

7. After the 7 hour in-person training, what did they report as their dose of exposure to the training, and how do they rate the training session, training manual, and trainer?

Part VII: Dose of Exposure and Rating the Continuing Education Module (DE-R-CEM-4)

Data Analysis: analyzed via descriptive statistics, including means, standard deviations, frequencies, and percentages

8. Were there any significant changes from before the training to after the training for their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [1- *the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant*; 2- *corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes*; 3- *the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula*; 4- *the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant*)]

Data Analysis: analyzed via Paired t-tests.

9. What was the relationship between characteristics of participants, and higher after training self-ratings for stage of change, self-efficacy, knowledge and motivation for the behavior of talking to expectant and new mothers about four key topics [1- *the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant*; 2- *corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes*; 3- *the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula*; 4- *the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant*)]?

Data Analysis: analyzed via Inferential Statistic (Pearson Correlation).

10. What were the significant predictors of the outcome variable of a post-training higher level of motivation for taking an active role in the proposed campaign (*i.e. A Campaign to Expose to the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation*)?

Data Analysis: analyzed via Backward stepwise regression

11. When given the opportunity for open sharing, how did they respond to open ended questions (1-What are the strengths and weaknesses of training; 2-How

could it be improved?; 3-What was the impact of the training on you?; and, 4-What other recommendations or comments do you have to share?)

Data Analysis: analyzed via coding and identification of emergent themes

Additional Details on the Qualitative Data Analysis Plan

A content analysis (of question #10) was used to analyze qualitative data for emergent themes in each sub-question of the research question #10. Further, following the standard research protocol of Professor Barbara Wallace's (Director) Research Group on Disparities in Health (RGDH), the qualitative data analysis involved the following steps:

- First, for each of the four qualitative research questions, the Principal Investigator created one document to include all of the participants' responses.
- Second, the Principal Investigator translated all of the participants' responses of the four qualitative questions into the document. Translation was conducted twice. The first one was done for the first 43 responses right after the completion of the first training, and the remaining translation for 56 responses after the second training was done.
- Third, the Principal Investigator conducted open coding and created categories and abstraction to all responses for the four qualitative questions. An emergent theme was categorized, then the data was organized according to the four qualitative questions of: 1) What are the strengths and weaknesses of training?; 2) How could it be improved?; 3) What was the impact of the training on you?; and, 4) What other recommendations or comments do you

have to share? Finally, a review of the collected documents was conducted to better contextualize the results of the data analysis.

Conclusion

This chapter described the methods used in the present study, including an overview of the study design and procedures. This chapter also described the recruitment of participants, description of the study participants, description of research instrumentation and how data was managed and analyzed.

Chapter IV will present the results of the present study.

Chapter IV

RESULTS

This chapter provides the results of the presents study as outlined in the data analysis plan. The results are organized by research questions, including presentation of tables to summarize findings.

Data Analysis Results by Study Question

Results for Research Question #1:

What were the demographic characteristics of the sample? (Part I- BD-7)

The study sample included 99 breastfeeding educators and counselors. However, please recall from Chapter III, Methods, that while 101 gave informed consent to participate in the study, 100 completed the pre-training survey, 100 completed the post-training survey, but only 99 completed both surveys in their entirety. Hence, study N = 99.

The study sample was 97% female ($n = 93$) and 91% married ($n = 91$) with a mean age of 36.84 years ($Min = 18, Max = 60, SD = 7.36$). Those ages 26 to 40 made up 72.6% of the sample ($n = 72$). Over half (61.1%, $n = 61$) were breastfeeding counselors, followed by breastfeeding educators (58.6%, $n = 58$).

The mean of monthly household income of the participants fell into the category 2 of IDR 6,000.000 to IDR 10,500.000 (min 1-Less than IDR 5,900.000, max = 7-IDR 31,000.000 or more, SD = 1.55), while 15.2% (n = 15) reported having household incomes of IDR 11,000.000 to 25.500.000. The mean for education level was 4.47 for a 4-year college degree (min 1-High school graduate, max = 6-Medical Degree, SD = 1.561). Over half of the sample (68.7%, n = 68) had at least gone to college, with 51% (n = 51) earning a Bachelor's Degree,; and, 17.2% (n = 17) at least attended some college, and 18.2% (n = 18) had a Master's Degree, and 13.1% (n = 13) had a Medical Degree. Almost half of the participants (48.5%, n = 48) reported living in a district area, while 30.3% (n = 30) reported living in a capital city, and 21.2% (n = 21) living in a provincial area.

See Table 1.

Table 1. Background Demographics (BD-7) (N = 99)

	N	%		N	%
Gender (N = 99)			Income (N = 99)		
Female	96	97.0	1- Less than or IDR 5,900.000	42	42.4
Male	3	3.0	2- IDR 6,000.000 to IDR 10,500.000	35	35.4
Age (N = 99)			3- IDR 11,000.000 to IDR 15,500.000	7	7.1
20 – 25	1	1	4- IDR 16,000.000 to IDR 20,500.000	6	6.1
26 – 30	21	21.2	5- IDR 21,000.000 to IDR 25,500,000	2	2
31 – 35	25	25.2	6- IDR 26,000.000 to IDR 30,500.000	3	3
36 – 40	26	26.2	7- IDR 31,000.000 or more	4	4
41 – 45	14	14.1	<i>M income = Cat 2, (min 1, max 7), SD = 1.55</i>		
46 – 50	6	6.1			
51 – 55	4	4	Education Level (N = 99)		
56 – 60	2	2	1- High school graduate or high school equivalent	0	0
<i>Mean age = 36.84 (min 18, max 60)</i>			2-Some college	6	6.1
<i>SD = 7.36</i>			3-3-year college degree (Associate's)	11	11.1
Marital Status (N = 99)			4-4-year college degree (Bachelor's)	51	51.5
A single Mother	2	2	5-Master's degree	18	18.2

Table 1 (continued)

Marital Status (N = 99)

Married	91	91.9
Divorced	1	1
Single/No partner	7	7.1

Education Level (N = 99)

6-Medical Degree (M.D., D.D.S., etc.)	13	13.1
<i>M education = 4.47, (min 1, max 6) SD = 1.561</i>		

Residence (N = 99)**Current Status (N = 99)**

Employed	46	46.5	Capital city/Urban area	30	30.3
Unemployed	9	9.1	District area	48	48.5
A breastfeeding counselor	61	61.6	Provincial area	21	21.2
A breastfeeding educator	58	58.6			
A professional health worker (a midwife, an MD, a nurse)	31	31.3			
A community health educator	24	24.2			
A homemaker	24	24.2			
A certified lactation counselor	9	9.1			
7-A health cadre	6	6.1			
Other	3	3			

Results for Research Question #2:

Before the 7 hour in-person training, what were their self-rating for level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns? (Part II BT-RMK-1)

For the sample (N = 99), *the mean self-rating for the participants' counter-marketing and campaign knowledge before they participated in the 7-hour training (pre-training knowledge about counter-marketing) was 1.65 for closest to poor (min = 1-Very Poor, max = 4-Good, SD = .646). Almost half of participants (48.5%, n = 48) rated their knowledge as poor, and 44% (n = 44) rated it as very poor.*

See Table 2.

Table 2. Pre-Training: Rating of my Counter-marketing and Campaign Knowledge (BT-RMK-1) (N = 99)

	N	%
<i>I rate my level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns as:</i>		
<i>[Mean = 1.65, N = 99, Min 1, Max 4, SD = .646]</i>		
1-Very Poor	44	44.4
2-Poor	48	48.5
3-Fair	6	6.1
4-Good	1	1.0
5-Very Good	0	0
6-Excellent	0	0

Results for Research Question # 3:

Before the 7 hour in-person training, what are their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [1- the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant; 2- corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes; 3- the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula; 4- the risk of becoming dependent on expensive formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant)] (Part III: BT-SOC-SE-K-M-L 4)

Pre-training: Stages of Change Scale for Four Talking Behaviors (BT-SOC-

4). The subscale obtained scores that ranged from 1.00 (precontemplation stage) to 5.00 (maintenance stage). *The global mean score for this sample (N = 99) was 4.087,* indicating **the entire sample was closest to action** when examining all four key talking behaviors pre-training.

See Table 3.

Table 3. Pre-Training Global Stages of Change for Four Talking Behaviors

Item	N	Min	Max	Mean	SD
Global Stage of Change Before Training	99	1	5	4.086	.848

For the first key talking behavior of interest (**#1 = talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant**), *the mean was 4.77, for closest to maintenance stage* (Min 4, Max 5, SD .424). For example, the majority of the sample (76.8%, $n = 76$) was in a maintenance stage for this behavior—before training.

With regard to the second key talking behavior of interest (**#2 = talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes**), *the mean was 3.58, for between contemplation and action stage* (Min 1, Max 5, SD = 1.464). For example, 46.5% ($n = 46$) were in a maintenance stage—before training.

For the third talking behavior (**#3 = talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula**), *the mean was 3.39* (Min 1, Max 6, SD = 1.456), for closest to preparation stage. For example, 39.4% ($n = 39$) was in a maintenance stage for this behavior—before training.

For the fourth key talking behavior of interest (**#4 = talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant**), *the mean was 4.61*, (Min 1, Max 5, SD = .74) for between

action and maintenance stage. For example, the majority (70.7%) were in a maintenance stage—before training.

See Table 4.

Table 4. Pre-Training: Stages of Change for Four Talking Behaviors (BT-SOC-4)

ITEM #	N	%
<i>Subscale 1. Talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant</i> <i>[Mean = 4.77, N = 99, Min 4, Max 5, SD = .424]</i>		
1-I am not thinking of doing this behavior at all (precontemplation)	0	0
2-I am thinking about doing this behavior (contemplation)	0	0
3-I am preparing to do this behavior (preparation)	0	0
4-I have been doing this behavior for less than six (6) months (action)	23	23.2
5-I have been doing this behavior for more than six (6) months (maintenance)	76	76.8
<i>Subscale 2. Talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes</i> <i>[Mean = 3.58, N = 99, Min 1, Max 5, SD = 1.464]</i>		
1-I am not thinking of doing this behavior at all (precontemplation)	5	5.1
2-I am thinking about doing this behavior (contemplation)	32	32.3
3-I am preparing to do this behavior (preparation)	9	9.1
4-I have been doing this behavior for less than six (6) months (action)	7	7.1
5-I have been doing this behavior for more than six (6) months (maintenance)	46	46.5

Table 4 (continued)

ITEM #	N	%
<p>Subscale 3. <i>Talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula</i> <i>[Mean = 3.39, N = 99, Min 1, Max 5, SD = 1.456]</i></p>		
1-I am not thinking of doing this behavior at all (precontemplation)	5	5.1
2-I am thinking about doing this behavior (contemplation)	38	38.4
3-I am preparing to do this behavior (preparation)	8	8.1
4-I have been doing this behavior for less than six (6) months (action)	9	9.1
5-I have been doing this behavior for more than six (6) months (maintenance)	39	39.4
<p>Subscale 4. For <i>talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant</i> <i>[Mean = 4.61, N = 99, Min 1, Max 5, SD = .74]</i></p>		
1-I am not thinking of doing this behavior at all (precontemplation)	1	1
2-I am thinking about doing this behavior (contemplation)	2	2
3-I am preparing to do this behavior (preparation)	3	3
4-I have been doing this behavior for less than six (6) months (action)	23	23.2
5-I have been doing this behavior for more than six (6) months (maintenance)	70	70.7

Before training: Self-Efficacy for Four Talking Behaviors (BT-SE-4). The subscale obtained scores from 1.00 (0% confident) to 6.00 (100% confident), indicating their confidence to perform the targeted key behavior. *The global mean score for this sample (N = 99) was 4.29, suggesting the entire sample was closer to 60% confident (moderately high self-efficacy) when examining all four talking behaviors pre-training.*

See Table 5.

Table 5. Pre-Training Global Self-Efficacy for Four Talking Behaviors

Item	N	Min	Max	Mean	SD
Global Self-Efficacy Before Training	99	1	6	4.288	1.030

For the first key talking behavior of interest (**#1 = talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant**), *the mean was 4.92* (Min 2, Max 6, SD = 1.10) for closest to 80% confident. For example, 41.4% (n = 41) were 100% confident (very high self-efficacy) they could do this behavior—before training.

For the second key talking behavior of interest (**#2 = talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes**), *the mean was 3.87*, (Min 1, Max 6, SD = 1.370) for closest to 60% confident. For example 26.3% (n = 26) were 60% confident they could perform this behavior—before training.

For the third talking behavior (**#3 = talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula**), *the mean was 3.67* (Min 1, Max 6, SD = 1.30), or closest to 60% confident. For example, nearly one-third sample (29.3%, n = 29) were 60% confident (moderately high self-efficacy) they could perform this behavior—before training.

Finally, for the fourth talking behavior of interest (**#4 = talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant**

formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant), the mean was 4.70 (Min 2, Max 6, SD = 1.147), or closest to 80% confident. For example, some 32.2% (n = 32) were 80% confident (high self-efficacy) to perform this behavior—before training.

See Table 6.

Table 6. Pre-Training: Self-Efficacy for Four Talking Behaviors (BT-SE-4)

ITEM #	N	%
Subscale 1. <i>Talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant</i> [Mean = 4.92, N = 99, Min 2, Max 6, SD = 1 .10]		
1-0% confident	0	0
2-20% confident	3	3
3-40% confident	6	6.1
4-60% confident	28	28.1
5-80% confident	21	21.1
6-100% confident	41	41.4
Subscale 2. <i>Talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes</i> [Mean = 3.87, N = 99, Min 1, Max 6, SD = 1.307]		
1-0% confident	3	3
2-20% confident	11	11.1
3-40% confident	27	27.3
4-60% confident	26	26.3
5-80% confident	19	19.2
6-100% confident	13	13.1

Table 6 (continued)

ITEM #	N	%
<p>Subscale 3. <i>Talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula</i> <i>[Mean = 3.67, N = 99, Min 1, Max 6, SD = 1.30]</i></p>		
1-0% confident	2	2
2-20% confident	19	19.2
3-40% confident	25	25.3
4-60% confident	29	29.3
5-80% confident	12	12.1
6-100% confident	12	12.1
<p>Subscale 4. <i>Talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant)</i> <i>[Mean = 4.70, N = 99, Min 2, Max 6, SD = 1.147]</i></p>		
1-0% confident	0	0
2-20% confident	4	4
3-40% confident	13	13.1
4-60% confident	21	21.2
5-80% confident	32	32.3
6-100% confident	29	29.3

Before-Training: Knowledge for Four Talking Behaviors (BT-K-4). The subscale obtained scores from 1.00 (non-existent, or none at all) to 8.00 (extremely high) indicating their knowledge to perform the targeted key behavior. *The global mean score for this sample (N = 99) was 5.012, suggesting the entire sample was closest to moderate knowledge* when examining all four key talking behaviors pre-training.

See Table 7.

Table 7. Pre-Training: Global Knowledge For Four Talking Behaviors

Item	N	Min	Max	Mean	SD
Global Knowledge before training	99	1	8	5.0126	1.0154

For the first key talking behavior of interest (**#1 = talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant**), *the mean was 5.43* (Min 2, Max 8, SD = 1.11) for closest to moderate knowledge For example 69.7% (n = 69) had moderate or high knowledge to perform this behavior—before training.

With regard to the second key talking behavior of interest (**#2 = talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes**), *the mean was 4.57*, (Min1, Max 7, SD = 1.379), or between low and moderate knowledge. For example, 56.6% (n = 56) had moderate or low knowledge to perform this behavior—before training.

For the third talking behavior (**#3 = talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula**), *the mean was 4.49*, (Min 1, Max 7, SD = 1.380), or between low and moderate knowledge. For example, over half of the sample 51.5% (n = 51) had moderate or low knowledge to perform this behavior—before training.

Finally, for the fourth key talking behavior of interest, (**#4 = talking to expectant and new mothers about the risk of becoming dependent on expensive commercial**

infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant), the mean was 5.56 (Min 1, Max 7, SD = 1.012), or between moderate to high knowledge. For example, 39.4% (n = 39) had moderate knowledge to perform this behavior—before training.

See Table 8.

Table 8. Pre-Training: Knowledge for Talking About Four Behaviors (BT-K-4)

ITEM #	N	%
Subscale 1. Talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant <i>[Mean = 5.43, N = 99, Min 2, Max 8, SD = 1.1]</i>		
	0	0
1-Non-existent (none at all)		
2-Extremely low	1	1
3-Very low	4	4
4-Low	8	8.1
5-Moderate	43	43.4
6-High	26	26.3
7-Very high	15	15.2
8-Extremely high	2	2
Subscale 2. Talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes <i>[Mean = 4.57, N = 99, Min 1, Max 8, SD = 1.379]</i>		
	4	4
1-Non-existent (none at all)		
2-Extremely low	4	4
3-Very low	10	10.1
4-Low	25	25.3
5-Moderate	31	31.3
6-High	20	20.2
7-Very high	5	5.1
8-Extremely high	4	4

Table 8 (continued)

ITEM #	N	%
Subscale 3. <i>Talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula</i> [Mean = 4.49, N = 99, Min 1, Max 8, SD = 1.380]		
	1	1
1-Non-existent (none at all)		
2-Extremely low	7	7.1
3-Very low	16	16.2
4-Low	24	24.2
5-Moderate	27	27.3
6-High	17	17.2
7-Very high	7	7.1
8-Extremely high	1	1
Subscale 4. <i>Talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant</i> [Mean = 5.56, N = 99, Min 1, Max 8, SD = 1.012]		
	1	1
1-Non-existent (none at all)		
2-Extremely low	3	3
3-Very low	7	7.1
4-Low	33	33.3
5-Moderate	39	39.4
6-High	16	16.2
7-Very high	1	1.0
8-Extremely high	3	3.0

Before-Training: Motivation for Four Talking Behaviors (BT-M-4). The subscale obtained scores from 1.00 (none existent or none at all) to 8.00 (extremely high), indicating motivation to perform the targeted four key talking behaviors. *The global mean score for this sample (N = 99) was 6.65, or closest to very high motivation for all four key behaviors—before training.*

See Table 9.

Table 9. Pre-Training Global Motivation for Four Talking Behaviors

Item	N	Min	Max	Mean	SD
Global Motivation before training	99	2	8	6.164	.735

For the first key behavior of interest (**#1 = talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant**), *the mean was 6.32* (Min 4, Max 8, SD = .831), or closest to high motivation. For example, 42.4% (n = 42) of the sample had high motivation they could do this behavior—before training.

For the second key behavior of interest (**#2 = talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes**), *the mean was 5.90* (Min 2, Max 8, SD = 1.064), or closest to high motivation. For example, some 44.4% (n = 44) of the sample had moderate motivation to perform this behavior—before training.

For the third behavior (**#3 = talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula**), *the mean was 5.88* (Min 3, Max 8, SD = 1.043), or closest to high motivation. For example, the majority of the sample (65.6%, n = 65) had high or moderate motivation to perform this behavior—before training.

Finally, for the fourth key behavior of interest (**#4 = talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant**), *the mean was 6.56*, (Min 4, Max 8, SD = .883), or between high and very high motivation. For example, 41.4% (n = 41) sample had very high motivation to perform this behavior—before training.

See Table 10.

Table 10. Pre-Training: Motivation for Four Talking Behaviors (BT-M-4)

ITEM #	N	%
<i>Subscale 1. Talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant</i> [Mean = 6.32, N = 99, Min 4, Max 8, SD = .831]		
1-Non-existent (none at all)	0	0
2-Extremely low	0	0
3-Very low	0	0
4-Low	1	1.0
5-Moderate	14	14.1
6-High	42	42.4
7-Very high	36	36.4
8-Extremely high	6	6.1
<i>Subscale 2. Talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes</i> [Mean = 5.90, N = 99, Min 2, Max 8, SD = 1.064]		
1-Non-existent (none at all)	0	0
2-Extremely low	2	2
3-Very low	4	4
4-Low	24	24.2
5-Moderate	44	44.4
6-High	20	20.2
7-Very high	5	5.1
8-Extremely high	2	2

Table 10 (continued)

ITEM #	N	%
<i>Subscale 3. Talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula [Mean = 5.88, N = 99, Min 3, Max 8, SD = 1.043]</i>		
	0	0
1-Non-existent (none at all)		
2-Extremely low	0	0
3-Very low	1	1
4-Low	8	8.1
5-Moderate	24	24.2
6-High	41	41.4
7-Very high	19	19.2
8-Extremely high	6	6.1
<i>Subscale 4. Talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant) [Mean = 6.56, N = 99, Min 4, Max 8, SD = .883]</i>		
	0	0
1-Non-existent (none at all)		
2-Extremely low	0	0
3-Very low	0	0
4-Low	1	1
5-Moderate	10	10.1
6-High	34	34.3
7-Very high	41	41.4
8-Extremely high	13	13.1

Results for Research Question #4:

After the 7 hour in-person training, what is their self-rating for level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns? (PART IV: AT-RMK-1)

For the sample, *the mean self-rating* for the participants' *post-training counter-marketing and campaign knowledge* *after* they participated in the 7-hour training was

4.79, or **closest to very good** (Min = 3-fair, Max = 6-excellent, SD = .54). Over half of participants (69.7%, n = 69) rated their knowledge as very good.

See Table 11.

Table 11. Post-Training: Rating of my Counter-marketing and Campaign Knowledge (AT-RMK-1) (N = 99)

	N	%
<i>I rate my level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns as: [Mean = 4.79, N = 99, Min 3, Max 6, SD = .54]</i>		
	0	0
1-Very Poor		
2-Poor	0	0
3-Fair	1	1.0
4-Good	24	24.2
5-Very Good	69	69.7
6-Excellent	5	5.1

Results for Research Question #5:

After the 7 hour in-person training, what are their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [1- the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant; 2- corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes; 3- the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula; 4- the risk of becoming dependent on expensive formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant)] (PART V: AT-SOC-SE-K-M-4).

Post-Training: Stages of Change Scale for Four Talking Behaviors (AT-SOC-4). *After exposure to the 7-hour training, the subscale obtained scores that ranged from 1.00 (precontemplation) to 5.00 (maintenance). The global mean score for this sample (N=99) was 4.31, or closest to an action stage* when examining all four key talking behaviors post-training.

See Table 12.

Table 12. Post-Training Global Stage of Change for Four Talking Behaviors

Item	N	Min	Max	Mean	SD
Global Stage of Change after training	99	3	5	4.308	.637

For the first key behavior of interest (**#1 = talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant**), *the mean was 4.75* (Min 3, Max 5, SD = .459), or closest to a maintenance stage. For example, 75.8% (n = 75) were in a maintenance stage for this behavior—after training.

For the second key talking behavior of interest (**#2 = talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes**), *the mean was 4.02* (Min 3, Max 5, SD = .969) for closest to the action stage. For example, 47.5% (n = 47) of the sample was in a maintenance stage for this behavior—after training.

With regard to the third talking behavior (**#3 = talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula**), *the mean was 3.9* (N = 99, Min 3, Max 5, SD = .964) for closest to an action stage. For example, 51.5%, (n = 51) were in a preparation stage for this behavior—after training.

For the fourth key talking behavior of interest (**#4 = talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant**

formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant), the mean was 4.57 (Min 3, Max 5, SD = .717), or between action and maintenance stages. For example, 69.7% (n = 69) were in a maintenance stage—after training.

See Table 13.

Table 13. Post-Training: Stage of Change for Four Talking Behaviors (AT-SOC-4)

ITEM #	N	%
<i>Subscale 1. Talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant</i> [Mean = 4.75, N = 99, Min 3, Max 5, SD = .459]		
1-I am not thinking of doing this behavior at all (precontemplation)	0	0
2-I am thinking about doing this behavior (contemplation)	0	0
3-I am preparing to do this behavior (preparation)	1	1.0
4-I have been doing this behavior for less than six (6) months (action)	23	23.2
5-I have been doing this behavior for more than six (6) months (maintenance)	75	75.8
<i>Subscale 2. Talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes</i> [Mean = 4.02, N = 99, Min 3, Max 5, SD = .969]		
1-I am not thinking of doing this behavior at all (precontemplation)	0	0
2-I am thinking about doing this behavior (contemplation)	0	0
3-I am preparing to do this behavior (preparation)	45	45.5
4-I have been doing this behavior for less than six (6) months (action)	7	7.1
5-I have been doing this behavior for more than six (6) months (maintenance)	47	47.5

Table 13 (continued)

ITEM #	N	%
<i>Subscale 3. Talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula [Mean = 3.9, N = 99, Min 3, Max 5, SD = .964]</i>		
1-I am not thinking of doing this behavior at all (precontemplation)	0	0
2-I am thinking about doing this behavior (contemplation)	0	0
3-I am preparing to do this behavior (preparation)	51	51.5
4-I have been doing this behavior for less than six (6) months (action)	7	7.1
5-I have been doing this behavior for more than six (6) months (maintenance)	41	41.4
<i>Subscale 4. Talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant) [Mean = 4.57, N = 99, Min 3, Max 5, SD = .717]</i>		
1-I am not thinking of doing this behavior at all (precontemplation)	0	0
2-I am thinking about doing this behavior (contemplation)	0	0
3-I am preparing to do this behavior (preparation)	13	13.1
4-I have been doing this behavior for less than six (6) months (action)	17	17.2
5-I have been doing this behavior for more than six (6) months (maintenance)	69	69.7

After Training: Self-Efficacy for Four Talking Behaviors (AT-SE-4). The subscale obtained scores from 1.00 (0% confident) to 6.00 (100% confident) indicating their confidence to perform the targeted key behavior. *The global mean score for this sample (N = 99) was 5.5, suggesting the entire sample was between 80% and 100% confident* when examining all four key behaviors post-training.

See Table 14.

Table 14. Post-Training Global Self-Efficacy for Four Talking Behaviors

Item	N	Min	Max	Mean	SD
Global Self-Efficacy after training	99	4	6	5.565	.447

For the first key behavior of interest (**#1 = talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant**), *the mean was 5.63* (Min 4, Max 6, SD = .546), or closest to 100% confident. For example, 65.7% (n = 65) were 100% confident (very high self-efficacy) they could do this behavior—after training.

For the second key talking behavior of interest (**#2 = talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes**), *the mean was 5.39*, (Min 3, Max 6, SD = .603). For example, 48.5% (n = 48) were 80% confident they could perform this behavior—after training.

For the third talking behavior (**#3 = talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula**), *the mean was 5.51*, (Min 3, Max 6, SD = .522), or between 80% and 100% confident. For example, 51.5% (n = 51) had 100% confidence they could do this behavior—after training.

Finally, for the fourth key talking behavior of interest (**#4 = talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of**

illness and death for their infant), the mean was 5.74 (Min 4, Max 6, SD = .465), or closest to 100% confident. For example, the majority (74.7%, n = 74) were 100% confident (very high self-efficacy) to perform this behavior—after training.

See Table 15.

Table 15. Post-Training Self-efficacy for Four Talking Behaviors (AT-SE-4)

ITEM #	N	%
<i>Subscale 1. Talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant</i> <i>[Mean = 5.63, N = 99, Min 4, Max 6, SD = .546]</i>		
	0	0
1-0% confident		
2-20% confident	0	0
3-40% confident	0	0
4-60% confident	3	3
5-80% confident	31	31.3
6-100% confident	65	65.7
<i>Subscale 2. Talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes</i> <i>[Mean = 5.39, N = 99, Min 4, Max 6, SD = .603]</i>		
	0	0
1-0% confident		
2-20% confident	0	0
3-40% confident	0	0
4-60% confident	6	6.1
5-80% confident	48	48.5
6-100% confident	45	45.5

Table 15 (continued)

ITEM #	N	%
<i>Subscale 3. Talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula [Mean = 5.51, N = 99, Min 4, Max 6, SD = .522]</i>		
	0	0
1-0% confident		
2-20% confident	0	0
3-40% confident	0	0
4-60% confident	1	1.0
5-80% confident	47	47.5
6-100% confident	51	51.5
<i>Subscale 4. Talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant) [Mean = 5.74, N = 99, Min 4, Max 6, SD = .465]</i>		
	0	0
1-0% confident		
2-20% confident	0	0
3-40% confident	0	0
4-60% confident	1	1.0
5-80% confident	24	24.2
6-100% confident	74	74.7

After Training: Knowledge for Four Talking Behaviors (AT-K-4). The subscale obtained scores from 1.00 (non-existent, or none at all) to 8.00 (extremely high), indicating their knowledge to perform the targeted key talking behavior. *The global mean score for this sample (N = 99) was 6.44, indicating the entire sample was closest to moderate knowledge* when examining all four key behaviors post-training.

See Table 16.

Table 16. Post-Training Global Knowledge for Four Talking Behaviors

Items	N	Min	Max	Mean	SD
Global Knowledge after training	99	5	8	6.44	.737

For the first key talking behavior of interest (**#1 = talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant**), *the mean was 6.43*, (Min 5, Max 8, SD = .797), or closest to high knowledge. For example, 35.5% (n = 35) had a very high knowledge to perform for this behavior—after training.

For the second key talking behavior of interest (**#2 = talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes**), *the mean was 6.32*, (Min 5, Max 8, SD = .913), or closest to high knowledge. For example, 69.7% (n = 69) had very high or high knowledge to perform this behavior—after training.

For the third talking behavior (**#3 = talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula**), *the mean was 6.36* (Min 5, Max 8, SD = .841), or closest to high knowledge. For example, 78.8% (n = 78) had high or very high knowledge to perform this behavior—after training.

Finally, for the fourth key talking behavior of interest (**#4 = talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of**

illness and death for their infant), the mean was 6.65 (Min 5, Max 8, SD = .849), or
 closest to very high knowledge. For example, 43.4% (n = 43) had very high knowledge to
 perform for this behavior—after training.

See Table 17.

Table 17. Post-Training Knowledge for Four Talking Behaviors (AT-K-4)

ITEM #	N	%
<i>Subscale 1. Talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant</i> [Mean = 6.43, N = 99, Min 5, Max 8, SD = .797]		
	0	0
1-Non-existent (none at all)		
2-Extremely low	0	0
3-Very low	0	0
4-Low	0	0
5-Moderate	10	10.1
6-High	45	45.5
7-Very high	35	35.4
8-Extremely high	9	9.1
<i>Subscale 2. Talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes</i> [Mean = 6.32, N = 99, Min 5, Max 8, SD = .913]		
	0	0
1-Non-existent (none at all)		
2-Extremely low	0	0
3-Very low	0	0
4-Low	0	0
5-Moderate	21	21.2
6-High	34	34.3
7-Very high	35	35.4
8-Extremely high	9	9.1

Table 17 (continued)

ITEM #	N	%
<i>Subscale 3. Talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula [Mean = 6.36, N=99, Min 5, Max 8, SD = .814]</i>		
1-Non-existent (none at all)	0	0
2-Extremely low	0	0
3-Very low	0	0
4-Low	0	0
5-Moderate	14	14.1
6-High	42	42.4
7-Very high	36	36.4
8-Extremely high	7	7.1
<i>Subscale 4. Talking to expectant and new mothers about the risk of becoming dependent on expensive commercial Infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant) [Mean = 6.65, N = 99, Min 5, Max 8, SD = .849]</i>		
1-Non-existent (none at all)	0	0
2-Extremely low	0	0
3-Very low	0	0
4-Low	0	0
5-Moderate	9	9.1
6-High	32	32.3
7-Very high	43	43.4
8-Extremely high	15	15.2

After Training: Motivation for Four Talking Behaviors (AT-M-4). The subscale obtained scores from 1.00 (none existent or none at all) to 8.00 (extremely high), indicating their motivation to perform the targeted four key behaviors. *The global mean score for this sample (N = 99) was 7.427, indicating the entire sample was closest to very high motivation* when examining all four key talking behaviors post-training.

See Table 18.

Table 18. Post-Training Global Motivation for Four Talking Behaviors

Item	N	Min	Max	Mean	SD
Global Motivation after training	99	6	8	7.429	.0479

For the first key talking behavior of interest (**#1 = talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant**), *the mean was 7.37* (Max 8, SD = .679), or closest to very high motivation. For example, 48.5% (n = 48) had an extremely high motivation to do this behavior—after training.

For the second key talking behavior of interest (**#2 = talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes**), *the mean was 7.28* (Min 6, Max 8, SD = .607), or closest to very high motivation. For example, 55.6% (n = 55) had very high motivation to perform this behavior—after training.

For the third talking behavior (**#3 = talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula**), *the mean was 7.42* (Min 6, Max 8, SD = .573), or closest to very high motivation. For example, 49.5% (n = 49) had a very high motivation to perform this behavior—after training.

Finally, for the fourth key talking behavior of interest (**#4 = talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant**), *the mean was 7.64* (Min 6, Max 8, SD = .562), or closest to extremely high motivation. For example, 48.5% (n = 48) of the sample had extremely high motivation to perform this behavior—after training.

See Table 19.

Table 19. Post-Training: Motivation Scale for Four Talking Behaviors (AT-M-4)

ITEM #	N	%
<i>Subscale 1. Talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant</i> [Mean = 7.37, N = 99, Min 6, Max 8, SD = .679]		
	0	0
1-Non-existent (none at all)		
2-Extremely low	0	0
3-Very low	0	0
4-Low	0	0
5-Moderate	0	0
6-High	11	1.1
7-Very high	40	40.4
8-Extremely high	48	48.5
<i>Subscale 2. Talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes</i> [Mean = 7.28, N = 99, Min 6, Max 8, SD = .607]		
	0	0
1-Non-existent (none at all)		
2-Extremely low	0	0
3-Very low	0	0
4-Low	0	0
5-Moderate	0	0
6-High	8	8.1
7-Very high	55	55.6
8-Extremely high	48	48.5

Table 19 (continued)

ITEM #	N	%
<i>Subscale 3. Talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula</i> [Mean = 7.42, N = 99, Min 6, Max 8, SD = .573]		
1-Non-existent (none at all)	0	0
2-Extremely low	0	0
3-Very low	0	0
4-Low	0	0
5-Moderate	0	0
6-High	4	4.0
7-Very high	49	49.5
8-Extremely high	46	46.5
<i>Subscale 4. Talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant)</i> [Mean = 7.64, N = 99, Min 6, Max 8, SD = .562]		
1-Non-existent (none at all)	0	0
2-Extremely low	0	0
3-Very low	0	0
4-Low	0	0
5-Moderate	0	0
6-High	4	4.0
7-Very high	28	28.3
8-Extremely high	67	67.7

Research Question # 6:

After the 7 hour in-person training, regarding the new counter-marketing campaign—A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation, what are their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of taking an active role in the campaign (PART VI: SR-PC-SOC-SE-K-M-L-1).

The self-rating **for the behavior of taking an active role in the campaign**—i.e., *A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation* – included four separate subscales that measured: **Stage of Change (SR-PC-SOC-4), Self-Efficacy (SR-PC-SE-4), Knowledge (SR-PC-K-4), and Motivation (SR-PC-M-4)** after exposure to the 7-hour training.

Stage of Change Scale for Taking an Active Role in the Campaign. For stage of change (i.e. for the behavior of taking an active role in the campaign - *A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation*), the mean of the sample was 3.15, or **the entire sample was closest to a preparation stage** (N = 99, Min 3, Max 5, SD = .522). The majority of the sample (91.9%, n = 91) was in a preparation stage for this behavior—after the training.

Self-Efficacy Scale for Taking an Active Role in the Campaign. For self-efficacy (i.e. for the behavior of taking an active role in the campaign - *A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation*), the mean of the sample was 5.26, or **closest to 80% confident** (N=99, Min 4, Max 6, SD = .572). The majority of sample (65.7%, n = 65) were with 80% confident (high self-efficacy) to perform this behavior—after the training.

Knowledge for Taking an Active Role in the Campaign. For the knowledge (i.e. **required for the behavior of taking an active role in the campaign** - *A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation*), the mean of the sample was 6.01, or **closest to high knowledge**, N = 99, Min 4, Max 8, SD = .931. Nearly half of the sample (47.5%, n = 47) were with high knowledge to perform this behavior—after the training.

Motivation for Taking an Active Role in the Campaign. For motivation (i.e. **required for the behavior of taking an active role in the campaign - A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation**), the mean of the sample was 7.32, or **very high motivation** (N = 99, Min 6, Max 8, SD = .636). Nearly half of the sample (49.5%, n = 49) had very high motivation to perform this behavior. Meanwhile 41.4% (n = 41) had extremely high motivation they could do so—after the training.

See Table 20.

Table 20. Stage of Change, Self-Efficacy, Knowledge, and Motivation for Taking an Active Role in the Campaign

ITEM #	N	%
<i>Subscale 1. After the 7 hour in-person training, what were their self-ratings for stage of change for the behavior of taking an active role in the new counter-marketing the Campaign—A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation.</i> [Mean = 3.15, N = 99, Min 3, Max 5, SD = .522]		
1-I am not thinking of doing this behavior at all (precontemplation)	0	0
2-I am thinking about doing this behavior (contemplation)	0	0
3-I am preparing to do this behavior (preparation)	91	91.9
4-I have been doing this behavior for less than six (6) months (action)	1	1.0
5-I have been doing this behavior for more than six (6) months (maintenance)	7	7.1

Table 20 (continued)

ITEM #	N	%
<i>Subscale 2. After the 7 hour in-person training, what are their self-ratings for self-efficacy for the behavior of taking an active role in the new counter-marketing the Campaign —A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation.</i>		
<i>[Mean = 5.26, N = 99, Min 4, Max 6, SD = .527]</i>		
1-0% confident	0	0
2-20% confident	0	0
3-40% confident	0	0
4-60% confident	4	4.0
5-80% confident	65	65.7
6-100% confident	30	30.3
<i>Subscale 3. After the 7 hour in-person training what are their self-ratings for my level-of knowledge for taking part in the doing the new counter-marketing Campaign.</i>		
<i>[Mean = 6.01, N = 99, Min 4, Max 8, SD = .931]</i>		
1-Non-existent (none at all)	0	0
2-Extremely low	0	0
3-Very low	0	0
4-Low	1	1.0
5-Moderate	29	29.3
6-High	47	47.5
7-Very high	12	12.1
8-Extremely high	10	10.1
<i>Subscale 4. After the 7 hour in-person training what are their self-ratings for my motivation for doing the new counter-marketing campaign—A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation.</i>		
<i>[Mean = 7.32, N = 99, Min 6, Max 8, SD = .636]</i>		
1-Non-existent (none at all)	0	0
2-Extremely low	0	0
3-Very low	0	0
4-Low	0	0
5-Moderate	0	
6-High	9	9.1
7-Very high	49	49.5
8-Extremely high	41	41.4

Research Question #7:

After the 7 hour in-person training, what do they report as their dose of exposure to the training, and how do they rate the training session, training manual, and trainer? (PART VII: Dose of Exposure and Rating the Continuing Education Module-4)

First, for dose of exposure to the training, the vast majority of sample (96%, n=95) reported that they attended all of the training session.

See Table 21.

Table 21. Dose of Exposure to Training

Item	N	%
<i>I was present for:</i>		
<i>[Mean = 1.03, N = 99, Min 1, Max 2, SD = .173]</i>		
1-All of the training session	95	96.0
2-Most of the training session	4	4.0
3-Some of the training session	0	0
4-None of the training session	0	0

Second, for **rating the training**, the mean was 4.81, or closest to “very good” (N=99, Min 3, Max 6, SD = .528). The majority of sample (78.7%, n=78) rated the training as excellent or very good.

See Table 22.

Table 22. Rating the Training

Item	N	%
<i>I rate the training session as:</i>		
<i>[Mean = 4.81, N = 99, Min 3, Max 6, SD = .528]</i>		
1-Very Poor	0	0
2-Poor	0	0
3-Fair	2	2
4-Good	19	19.2
5-Very Good	74	74.7
6-Excellent	4	4

Third, for **rating the training materials**, *the mean was 4.47, or closest to “good”* (N = 99, Min 3, Max 6, SD = .644). Some 39.4% (n = 39) rated the training as good.

See Table 23.

Table 23. Rating the Training Materials

Item	N	%
<i>I rate the training materials as:</i> <i>[Mean = 4.47, N = 99, Min 3, Max 6, SD = .644]</i>		
1-Very Poor	0	0
2-Poor	0	0
3-Fair	7	7.1
4-Good	39	39.4
5-Very Good	52	52.5
6-Excellent	1	1.0

Fourth, for **rating the trainer**, *the mean was 5.11, or closest to very good* (N = 99, Min 4, Max 6, SD = .471). Some 76.8% (n = 76) rated the trainer as very good.

See Table 24.

Table 24. Rating the Trainer

Item	N	%
<i>I rate the trainer who led the training session as:</i> <i>[Mean = 5.11, N = 99, Min 4, Max 6, SD = .471]</i>		
1-Very Poor	0	0
2-Poor	0	0
3-Fair	1	1.0
4-Good	6	6.1
5-Very Good	76	76.8
6-Excellent	17	17.2

Research Question #8:

Were there any significant changes from before the training to after the training for their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [*1- the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant; 2- corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes; 3- the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula; 4- the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant*)]

Stages of Change Paired T-Tests. Using paired t-tests, mean scores were compared from the Pre-Stages of Change (BT-SOC-4) subscale for *before* participating in the training to the Post Stages of Change (AT-SOC-4) subscale for *after* participating in the training. Recall, both sub-scales obtained scores that ranged from 1.00 (precontemplation) to 5.00 (maintenance).

When examining all four key behaviors of interest combined in a Global Stage of Change Score, the *before training participation mean was 4.089* or **an action stage** (N = 99, SD = .848) versus the *after training participation mean of 4.308* that was **still an action stage** (N = 99, SD = .636), as a difference that was statistically significant ($t = -6.103$, $df = 98$ $p = .000$) in the pre- versus post- mean stage of change score. *The post-training mean stage of change score was significantly higher than the pre-training mean stage of change score.*

See table 25.

Table 25. Paired T-Tests for Stages of Change: Pre- versus Post- Comparison

Items	N	M	SD	<i>t</i>	df	<i>p</i>
Stage of Change Pre-Training	99	4.089	.848	-6.103	98	.000***
Stage of Change Post Training	99	4.308	.636			

For the first talking behavior of interest (**#1 = Talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant**), the *before* training participation mean was 4.77 suggesting the entire sample **was closest to a maintenance stage** (N = 99, SD = .424); this was compared to the *after* training participation mean of 4.75 which **was still closest to a maintenance stage** (N = 99, SD = .459); this difference was not statistically significant ($t = .815$, $df = 98$, $p = .417$). There was no statistically significant difference in their stage of change for this talking behavior—as *there was “no place to go,” meaning the sample was already in a maintenance stage for this behavior—before the training.*

For the second talking behavior (**#2 =. talking about corporations’ inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes**), the *before* training participation mean was 3.58 suggesting **the sample was between a preparation stage and an action stage** (N = 99, SD = 1.464); this was compared to the *after* training participation mean of 4.02 which was **in an action stage** (N = 99, SD = .969); this difference was statistically significant ($t = -6.453$, $df = 98$, $p = .000$). *This suggests the sample’s progressive movement from pre- training to post-training across the stages of change toward being solidly in the action stage for this talking behavior.*

For the third talking behavior (**#3 = talking about the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking**), the *before* training participation mean was 3.39, **or in a preparation stage** (N = 99, SD = 1.456); this was compared to the *after* training participation mean of

3.90 which was **closest to an action stage** ($N = 99$, $SD = .964$); this difference was statistically significant ($t = -6.490$, $df = 98$, $p = .000$). *This suggests the sample's progressive movement from pre- training to post-training across the stages of change toward the action stage for this talking behavior.*

With regard to the fourth talking behavior (**#4 = talking about the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant**), the *before training mean was 4.61 or between an action and maintenance stage* ($N = 99$, $SD = .740$); this was compared to the *after training participation mean of 4.57* which was still between **an action and a maintenance stage** ($N = 99$, $SD = .717$); this difference was not statistically significance ($t = .705$, $df = 98$, $p = .482$). There was no statistically significant difference in their stage of change for this talking behavior—as *there was “no place to go,” meaning the sample was already in a maintenance stage for this behavior—before the training.*

See Table 26.

Table 26. Paired Sample T-Tests for Stages of Change

	Stage of Change			t-tests		
	N	M	SD	<i>t</i>	df	<i>p</i>
<i>Talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant</i>						
Pre-Training	99	4.77	.424	.815	98	.417
Post Training	99	4.75	.459			
<i>Talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes</i>						
Pre-Training	99	3.58	1.464	-6.453	98	.000***
Post Training	99	4.02	.969			
<i>Talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula</i>						
Pre-Training	99	3.39	1.456	-6.490	98	.000***
Post Training	99	3.90	.964			
<i>Talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant)</i>						
Pre-Training	99	4.61	.740	.705	98	.482
Post Training	99	4.57	.717			

p<.05**, *p<.01**, *****p<.001**, Bonferroni Adjustment Significance (.05/4, *p*= .0125)
Note: All *p* values above .0125 are considered non-significant, and only those below .0125 are considered statistically significant

Self-Efficacy Paired T-Test. Regarding confidence to perform all four key talking behaviors of interest, or regarding their global Self-Efficacy Score, the *pre-training mean was 4.288, or 60% confident* (N = 99, SD = 1.030); this was compared to the *post-training mean of 5.565, or between 80% and 100% confident* (N = 99, SD = .447); and, the difference was statistically significant ($t = -17.414$, $df = 98$ $p = .000$). Global self-efficacy to perform the four talking behaviors of interest increased significantly from pre- to post-training.

See table 27.

Table 27. Paired T-Test for Self-efficacy

Items	N	M	SD	<i>t</i>	df	<i>p</i>
Stage of Change Pre-Training	99	4.288	1.030	-17.414	98	.000
Stage of Change Post Training	99	5.565	.447			

For the first talking behavior of interest (**#1 = talking about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant**), the *before training mean was 4.92, or closest to 80% confident* (N=99, SD = 1.104); this was compared to the *after training participation mean of 5.63, or closest to 100% confident* (N = 99, SD = .546); this difference was statistically significant ($t = -8.294$, $df = 98$, $p = .000$). *Self-efficacy to perform the first talking behavior of interest increased significantly from pre- to post-training.*

For the second behavior (**#2 = talking about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes**), the *before training mean was 3.87, or closest to 60% confident* (N = 99,

SD = 1.307); this was compared to the *after* training participation *mean of 4.39 or now fully in the category of 60% confident* (N = 99, SD = .603); this difference was statistically significant ($t = -16.522$, $df = 98$, $p = .000$). *Self-efficacy to perform the second talking behavior of interest increased significantly from pre- to post-training.*

For the third talking behavior (#3 = **talking about the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking**), the *before* training participation *mean was 3.67, or closest to 60% confident* (N = 99, SD = 1.309); this was compared to the *after* training participation *mean of 5.51, or between 80% confident and 100% confident* (N = 99, SD = .552); this difference was statistically significant ($t = -17.003$, $df = 98$, $p = .000$). *Self-efficacy to perform the third talking behavior of interest increased significantly from pre- to post-training.*

With regard to the fourth talking behavior (#4 = **talking about the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant**), the *before* training *mean was 4.70, or closest to 80% confident or high self-efficacy* (N = 99, SD = 1.147); this was compared to the *after* training *mean of 5.74, or closest to 100% confident* (N = 99, SD = .456); this difference was statistically significant ($t = -10.579$, $df = 98$, $p = .000$). *Self-efficacy to perform the fourth talking behavior of interest increased significantly from pre- to post-training.*

See Table 28.

Knowledge Paired T-Test. Regarding the knowledge score for all four key behaviors of interest, the *before training mean was 5.013, or closest to moderately high knowledge* (N = 99, SD = 1.015); this was compared to the *after training mean of 6.441, or closest to high knowledge* (N = 99, SD = .737), and the difference was statistically significant ($t = -22.328$, $df = 98$ $p = .000$; Bonferroni Adjustment Significance- $.05/4 = .0125$). *Knowledge to perform all four of the talking behaviors of interest increased significantly from pre- to post-training.*

Of note, since this involved four comparisons, using paired t-tests (n=4 comparisons), the Bonferroni Adjustment Significance ($.05/4 = .0125$) involved the higher significance level of .0125.

See Table 29.

Table 29. Paired T-test for Knowledge

Items	N	M	SD	<i>t</i>	Df	<i>p</i>
Stage of Change Pre-Training	99	5.013	1.015	-22.328	98	.000
Stage of Change Post Training	99	6.441	.737			

For the first talking behavior of interest (**#1 = talking about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant**), the *before training participation mean was 5.43, or moderately high knowledge* (N = 99, SD = 1.099); this was compared to the *after training participation mean of 6.43* which was **high knowledge** (N = 99, SD = .797); this difference was statistically significance ($t = -11.773$, $df = 98$, $p = .000$). *Knowledge to perform the first talking behavior of interest increased significantly from pre- to post-training.*

For the second talking behavior (**#2 = talking about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes**) the *before* training participation *mean* was 4.57 suggesting the sample was between moderate and high knowledge (N = 99, SD = 1.307); this was compared to the *after* training participation *mean* of 6.32 which was high knowledge (N = 99, SD = .603); this difference was statistically significance ($t = -18.868$, $df = 98$, $p = .000$). Knowledge to perform the second talking behavior of interest increased significantly from pre- to post-training.

For the third talking behavior (**#3 = talking about the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking**) the before training participation *mean* was 4.49, suggesting sample closest to low knowledge (N = 99, SD = 1.380); this was compared to the *after* training participation *mean* of 6.36 suggesting the sample had high knowledge (N = 99, SD = .814); this difference was statistically significance ($t = -15.824$, $df = 98$, $p = .000$). Knowledge to perform the third talking behavior of interest increased significantly from pre- to post-training.

Finally, for the fourth talking behavior (**#4 = talking about the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant**) the *before* training participation *mean* was 5.56 suggesting the sample was between moderately high and high knowledge (N = 99, SD = 1.012); this was compared to *after* the training participation *mean* of 6.65, which was closest to 100% confident or very high knowledge (N = 99, SD = .849); this difference was statistically significant ($t = -11.575$,

df = 98, $p = .000$). Knowledge to perform the fourth talking behavior of interest increased significantly from pre- to post-training.

See Table 30.

Table 30. Paired Sample T-tests for Knowledge

	Knowledge			t-tests		
	N	M	SD	<i>t</i>	df	<i>p</i>
<i>Talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant</i>						
Pre-Training	99	5.43	1.099	-11.773	98	.000***
Post Training	99	6.43	.797			
<i>Talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes</i>						
Pre-Training	99	4.57	1.307	-18.868	98	.000***
Post Training	99	6.32	.603			
<i>Talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula</i>						
Pre-Training	99	4.49	1.380	-15.824	98	.000***
Post Training	99	6.36	.814			

Table 30 (continued)

	Knowledge			t-tests		
	N	M	SD	<i>t</i>	df	<i>p</i>
<i>Talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant)</i>						
Pre-Training	99	5.56	1.012	-11.575	98	.000***
Post Training	99	6.65	.849			
* p<.05 , ** p<.01 , *** p<.001 , Bonferroni Adjustment Significance (.05/4, <i>p</i> = .0125) Note: All <i>p</i> values above .0125 are considered non-significant, and only those below .0125 are considered statistically significant						

Motivation Paired T-Test. The sample's mean Motivation Score for performing all four key talking behaviors of interest, *before the training*, was **6.164, or high motivation** (N = 99, SD = .735) versus the *after training mean of 7.429 for very high motivation* (N = 99, SD = .475), as a difference that was statistically significant (*t* = -25.124, df = 98 *p* = .000), given the Bonferroni Adjustment Significance (.05/4 = .0125). *Motivation to perform all four of the talking behaviors of interest increased significantly from pre- to post-training.*

See table 31.

Table 31. Paired T-tests for Motivation

Items	N	M	SD	<i>t</i>	df	<i>p</i>
Stage of Change Pre-Training	99	6.164	.735	-25.124	98	.000
Stage of Change Post Training	99	7.429	.475			

For the first talking behavior of interest (**#1 = talking about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant**) the *before* training mean was 5.90, or closest to **high motivation** (N = 99, SD = 1.063); this was compared to the *after* training mean of 7.37 for **very high motivation** (N = 99, SD = .679); this difference was statistically significant ($t = -16.808$, $df = 98$, $p = .000$). *Motivation to perform the first talking behavior of interest increased significantly from pre- to post-training.*

For the second talking behavior (**#2 = talking about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes**), the *before* training mean was 5.90, or closest to **high motivation** (N = 99, SD = 1.064); this was compared to the *after* training participation mean of 7.28, or **very high motivation** (N = 99, SD = .607); this difference was statistically significant ($t = -13.954$, $df = 98$, $p = .000$). *Motivation to perform the second talking behavior of interest increased significantly from pre- to post-training.*

For the third talking behavior (**#3 = talking about the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking**), the *before* training mean was 5.88, or closest to **high motivation** (N = 99, SD = 1.043); this was compared to the *after* training mean of 7.42 for **very high motivation** (N = 99, SD = .573); this difference was statistically significant ($t = -16.755$, $df = 98$, $p = .000$). *Motivation to perform the third talking behavior of interest increased significantly from pre- to post-training.*

With regard to the fourth behavior (**#4 = talking about the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk,**

and the increased risk of illness and death for their infant), the *before* training mean was 6.56, or between high and very high motivation (N = 99, SD = .883); this was compared to the *after* training participation mean of 7.64, or closest to extremely high motivation (N = 99, SD = .562); this difference was statistically significant ($t = -12.603$, $df = 98$, $p = .000$). Motivation to perform the fourth talking behavior of interest increased significantly from pre- to post-training.

See Table 32.

Table 32. Paired T-tests for Motivation

	Motivation			t-tests		
	N	M	SD	<i>t</i>	df	<i>p</i>
<i>Talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant</i>						
Pre-Training	99	5.90	1.063	-16.808	98	.000***
Post Training	99	7.37	.679			
<i>Talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes</i>						
Pre-Training	99	5.90	1.064	-13.954	98	.000***
Post Training	99	7.28	.607			

Table 32 (continued)

	Motivation			t-tests		
	N	M	SD	t	df	p
<i>Talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin)</i>						
Pre-Training	99	5.88	1.043	-16.755	98	.000***
Post Training	99	7.42	.573			
<i>Talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant)</i>						
Pre-Training	99	6.56	.883	-12.603	98	.000***
Post Training	99	7.64	.562			
*p<.05, **p<.01, ***p<.001, Bonferroni Adjustment Significance (.05/4, p = .0125). Note: All p values above .0125 are considered non-significant, and only those below .0125 are considered statistically significant						

Research Question #9:

What were the relationships between characteristics of participants, and higher after training self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [1- the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant; 2- corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes; 3- the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula; 4- the risk of becoming dependent on expensive formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant)]?

Pearson correlations were performed to explore relationships for selected independent variables (i.e., age, education, income, if employed) with the **after-training ratings for stage of change, self-efficacy, knowledge, and motivation for the four talking behaviors**. For the correlations, there were four comparisons, so the Bonferroni Adjustment Significance ($.05/4 = .0125$) involved the higher significance level of .0125.

1-First, **higher the Post-Training Stage of Change score**, then

- *the higher the age of participants* ($r = .306, p = .002$), achieving significance

2-Second, **higher the Post-Training Self-Efficacy score**, then

- *the higher the age of participants* ($r = .290, p = .004$), achieving significance

3-Third, **higher the Post-Training Knowledge score**, then

- *the higher the age of participants* ($r = .282, p = .005$), achieving significance
- *the higher the participants' level of education* ($r = .264, p = .008$), achieving significance
- *the higher the income* ($r = .378, p = .000$), achieving significance

4-Fourth, **higher Post-Training Motivation score** had no significant correlations with the independent variables.

See Table 33.

Table 33. Correlations Between Selected Variables and the Four Global Scores

	Post-Training 1-Stage of Change		Post-Training 2-Self- Efficacy		Post-Training 3-Knowledge		Post- Training 4-Motivation	
	R	p	R	p	R	p	R	p
Age	.306	.002**	.290	.004**	.282	.005**	.153	.130
Education	.244	.271	.302	.002**	.264	.008**	.152	.133
Income	.092	.364	.211	.036*	.378	.000***	.103	.312
If Employed	-.068	.465	.063	.536	.139	.169	-.041	.686

* $p < .05$, ** $p < .01$, *** $p < .001$, Bonferroni Adjustment Significance (.05/4, $p < .0125$).

Note: All p values above .0125 are considered non-significant, and only those below .0125 are considered statistically significant

Research question #10:

What were the significant predictors of the outcome variable of a post-training higher level of motivation for taking an active role in the proposed campaign (i.e. A Campaign to Expose to the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation)?

The outcome variable of interest. The outcome variable of interest was a higher post-training level of motivation for taking an active role in the proposed campaign (i.e. A Campaign to Expose the Truth about Becoming Independent on Commercial Formula and Breastfeeding Cessation).

The 12 Independent Variables. The regression analyses included 12 independent variables: 1) age, 2) highest level of education, 3) pre-training level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing, 4) pre-training self-efficacy for performing the behavior of talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant, 5) pre-training level of knowledge for doing the behavior of talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the

benefits for their infant 6) pre-training level of self-efficacy for the behavior of talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes, 7) pre-training level of knowledge for doing the behavior of talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes, 8) post-training level of self-efficacy for the behavior of talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes, 9) post-training level of knowledge for performing the behavior of talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes, 10) post-training level of self-efficacy for performing the behavior of taking an active role in the campaign, 11) post-training level of knowledge for performing the behavior of taking an active role in the campaign, 12) rating of the training.

The Backward Stepwise Regression Analyses. Each independent variable was initially entered in an all-inclusive model. Next, at each step of the analysis, the non-significant predictor variables were removed from the model. This process was replicated in stages, excluding each statistically insignificant independent predictor, one at a time, until only those that were statistically significant ($p \leq 0.05$) remained in the final, reduced model.

Backward stepwise regression analysis results for **higher level of motivation for taking an active role in the proposed campaign** (i.e. *A Campaign to Expose the Truth*

about Becoming Independent on Commercial Formula and Breastfeeding Cessation) was significantly predicted by:

- **Higher Pre-Training Self-Efficacy for talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding)** ($b = .327$, $SEB = .118$, $p = .007$)
- **Lower Pre-Training Knowledge for talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial formula** ($b = -.270$, $SEB = .092$, $p = .004$)
- **Higher Post-Training Knowledge for taking an active role in the new counter-marketing Campaign** (i.e. *A Campaign to Expose the Truth about Becoming Independent on Commercial Formula and Breastfeeding Cessation*) ($b = .392$, $SEB = .083$, $p = .000$).

For this regression model, $R^2 = 0.246$, and the adjusted R-square value for this model was 0.222, meaning that 22.2% of the variance was explained by this model.

See Table 34.

Table 34. Backwards Stepwise Regression Analysis Predicting Higher Level of Motivation (i.e. for taking an active role in the proposed campaign)

Predictors	b	SE _B	P
Higher Pre-Training Self-Efficacy (confidence) for talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding)	.327	.118	.007*
Lower Pre-Training Knowledge for talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial formula	-.270	.092	.004*
Higher Post-Training Knowledge for taking an active role in the new counter-marketing Campaign (i.e. <i>A Campaign to Expose the Truth about Becoming Independent on Commercial Formula and Breastfeeding Cessation</i>)	.392	.083	.000***

*p<.05, **p<.01, ***p<.001
F = 7.775 (p = .000)
R² = 0.246, Adj R² = 0.222 –meaning 22.2% of the variance was explained by this model

Results for research question #11:

When given the opportunity for open sharing, how do the women respond to open ended questions (1-What are the strengths and weaknesses of training; 2-How could it be improved? 3-What was the impact of the training on you? and, 4-What other recommendations or comments do you have to share?)

First, with regard to the first sub-topic (i.e. 1-What are the strengths and weaknesses of training?), 78.8% (n = 78) of samples responded to the question; and among the responses, several themes emerged.

Category I - The Strengths of the Training—Emergent Themes. Themes for

1-What are the strengths and weaknesses of training? included the following:

- **Theme – 1: Provides new knowledge and a new approach**
- **Theme – 2: A great/new training**

- **Theme – 3: Provides scientific evidence, references, data, and facts**

Numerous opinions/quotations illustrate and support the emergent themes, as

follows:

Theme – 1: Provides New Knowledge and a New Approach

- *It is a new knowledge and approach for me.*
- *I received new knowledge about advertising and [breast milk substitutes marketing] policy.*
- *It is good training that provides new knowledge.*
- *I learned new things, including knowledge and important information/facts about the negative effects of formula advertisements.*
- *This [training] enlightened my knowledge and was an eye opener about the marketing of formula and its negative effects.*
- *The training introduced me to a new method, approach, knowledge, as well as presented many facts based on scientific research.*
- *The training informed me about new knowledge that I have never received/heard before.*
- *This is new training that has new knowledge and information; importantly, the training is very useful to support my work as a medical doctor and breastfeeding counselor.*
- *I received new knowledge about advertising, [health] policy, and the truth behind the formula industry.*
- *The training added much information and new knowledge.*
- *Full of new data and knowledge.*

Theme—2: A great/new training

- *What a great training.*
- *This is a great training; it improved my knowledge.*
- *A great training. A new method and approach in addressing the aggressiveness of formula marketing*
- *It is a good training, especially for the truth session.*
- *It is a very interesting and very good training.*

- *It is a really **great training**; it motivated me to tell more mothers and more people about the truth about formula and the companies' marketing practices.*
- *This **new great training** has so much information we need as breastfeeding educators/counselors as well as health professionals. I have never thought about how aggressive the formula companies are in marketing their products. I saw it with my own eyes in the hospital where I work that the company gave us health supplies (and I guess money too) to the hospital. Thus, this training is needed for health professionals and those who represent health providers or facilities.*
- *The way the training was delivered was very easy to understand. **It's a great training.***

Theme – 3: Provides scientific evidence, references, data, and facts

- *I learned a lot about new **facts** and the truth behind formula advertisements.*
- *It is very enlightening training because we learned about facts, data, and **scientific evidence**.*
- *All **data, facts, and scientific** references were presented very well.*
- *It was very informative, educative, and full of **scientific** references.*
- *It is a new method and approach, as well as new knowledge, and it tells many facts based on **scientific** research (we usually only learned from our own lessons/practices or were told to accept facts without knowing the sources of the information or the scientific references).*
- *I loved learning about all the references (**scientific** research) that supported the truth behind formula ads and the risk of all BMS marketing on health.*
- *We also learned about how important it is for information to be based on **scientific** research/data.*
- *Rich on data and **scientific references**.*
- *I learned about new knowledge, information, facts, and **scientific references**.*
- *Very informative, educative, **new knowledge**.*

Category II - The Weaknesses of the Training - Emergent Themes. Themes

for sharing the weakness of the training included the following:

- **Theme – 1: Time - too short**

The following is a list of quotes to support the emergent theme that emerged:

Theme—1: Time - too short:

- *We had a very limited amount of time for discussion and activities.*
- *We **didn't have enough time** to do hands-on practice.*
- *We **need more time** please.... the materials were too much for a 7-hour training.*
- *We definitely **need sufficient time** to meaningfully discuss and practice each of the topics.*
- ***Due to time limitations**, we had no chance to practice producing news/ artwork, etc.*
- *I think we **need more time** to further discuss each subtopic in each session. We did not get a chance to elaborate on every group's opinion/thoughts about the topic we discussed.*
- *We **need more time** to deeply learn and do role play/activities to make sure that all participants understand what they learned during the training.*
- *A little too fast and some of the topics were too heavy, please consider adding **more time**.*
- *Too heavy, it was not really practical because we **did not have enough time** for in-depth discussion and hand-on practice in each session and its sub-session (some sessions have many subtopics which I think would need sufficient time for group discussion and practice).*

Category III – How the Training Could be Improved—Emergent Theme.

Themes with regard to 2-*How could it be improved?* involved 75.8% (n=75) of the sample responding to the question; and among the responses, only one main theme emerged.

How could it be improved- Emergent Themes. The emergent theme for improving the training included the following:

- **Theme – 1: Adding more time**

The following is a list of comments that supported

Theme – 1: Adding more time:

- ***Add more time**, add more hands-on practice sessions, and add some more examples from anti-tobacco campaign in the USA.*
- ***Add some more time** please...make it a two- to three-day training. We need more time for hands-on practice.*
- *The **duration** of the training definitely needed to be extended. Focus on hands-on practice, because this is what counselors and educators need to support our work.*
- ***To add more time for discussion.** This is important because we need to explore and learn what other participants' experiences and knowledge are.*
- ***Allocate an extra period of time**, let's work with the government institutions to get a little funding for the next training session.*
- *I would suggest having **at least a three days training session**, because the materials are very important and very useful for health practitioners. This would help us a lot in working at the community level.*
- ***To add more time**, especially for the activity portions. At least we need to allocate one topic per day, so that we can ensure all participants have the same understanding about what they learned, as all topics we learned today were very important.*
- ***To allocate more sufficient time for practice...** field trip (to a local store/health facility) to observe the implementation of optimal breastfeeding education/information and the aggressive marketing of formula for infants and young children.*

Category IV – What Was the Impact of the Training on You?—Emergent

Themes. Themes for 3-What Was the Impact of the Training on You—Emergent Themes.

sharing the impact of the training included the following:

- **Theme – 1: Being confident and motivated**
- **Theme – 2: Counter-marketing savvy and campaign enthusiasts**

The following is a list of quotes that supported the themes that emerged:

Theme – 1: Being confident and motivated

- *It improved my knowledge and **motivation** to do the campaign.*
- *I am now **strongly motivated** by the training and very **confident** to be an MCH*

(mother and child health) advocate, to speak about the negative effects of formula marketing on health.

- *I am now very **motivated** to continue spreading knowledge and information about the negative effects of formula feeding and its marketing tactics.*
- *I am now more informed about formula marketing and its negative effects on our health. The training has **motivated** me to do personal counter-marketing campaigns whenever I am working with mothers and families. I will definitely implement/practice what I learned from this training*
- ***I am very motivated** now to work with mothers and community to inform them about the negative effect of commercial formula feeding for the baby and the mother, and that they spread false facts in their advertisements.*
- ***It made me more confident** in working with mothers (counseling). In my cases, I met many mothers who perceived that formula ads are presenting true facts. This training has definitely helped me to help other mothers to understand how to distinguish claims versus facts about formula advertisements.*
- ***The training motivated** me to encourage other people to not accept the messages conveyed by baby food advertisements.*
- ***I am very motivated by the training** to educate and tell other people about the truth behind formula marketing; the findings and the recommendation from the World Health Organization; and the other scientific data on the negative effects of formula marketing.*
- ***I am also motivated** to create some contents to tell the truth/counter about those ads and share them on my social media accounts.*
- *This **training motivates** me to continue working with mothers and families, and also with local authorities to advocate for a regulation on limiting formula advertisement claims.*
- ***I am very motivated** to learn more about data, facts, as well as also willing to collect evidence on the aggressive marketing of formula products at my workplace.*

Theme – 2: Counter-marketing savvy and campaign enthusiasts

- *My knowledge on **counter-marketing** commercial formula has now increased.*
- *I know much better about **counter-marketing** campaigns and now have very good knowledge to implement when I am working with mothers and families.*
- *I understand what a **counter-marketing** campaign for the formula company is.*
- *It increased my knowledge, skills, and capabilities about **counter-marketing campaigns**, and this will help me a lot in working with mothers and families.*

- *The impact is very positive for me. It makes me think about new innovation and creativity in implementing **this counter-marketing approach**.*
- *This training has motivated me to do the campaign. I am very impressed with the **concept of counter-marketing** towards all commercial formula products.*

Category V – What Other Recommendations/ Comments Do You Have to

Share?—Emergent Themes. With regard to the final sub-topic (i.e. 4-What other recommendations or comments do you have to share?), 45.5% (n=45) of the sample responded to the question; and among the responses, three themes emerged, as follows:

- **Theme – 1: Anticipating the next step regarding the campaign**
- **Theme – 2: Viewing another training as needed**
- **Theme – 3: Devise campaign implementation plan**

The following is a list of quotes that supported the theme that emerged:

Theme – 1: Anticipating the next step regarding the campaign

- *I am looking forward to **the next follow up activity/real campaign** in the near future.*
- *A **concrete follow up activity on when the campaign** will start. Also, would love to have a follow-up training/workshop before starting the campaign.*
- *A **plan of action** is needed to be set up.*
- *I think more Indonesians need to attend training like this. And we need to have **follow up events/activities** in real advocacy work, to implement what we learned from this training.*
- *Please count me in if you have another **follow up training and/or activities/campaign/advocacy**.*
- *We **should have follow-up activities** or advocacy work in real life. Formula marketing in my region is really aggressive. We also know that the baby food companies work closely with certain policymakers. We need to generate public opinion addressing specific conflict-of-interest practices as well.*

Theme – 2: Viewing another training as needed

- *We need a follow-up training/workshop.*
- *I am looking forward to receiving another follow up workshop/ training*
- *I am ready for the upcoming training!*
- *To include some local examples (experiences and problems based on what is going on at the district/provincial level) in the training materials;*
- **We need to replicate** this training in many places, to let more people know about this new knowledge.

Theme – 3: Devise campaign implementation plan

- *We need a concrete plan of action for implementing this campaign. First of all, we maybe need two or more follow-up sessions for us to get a better picture of what we need to do to implement the campaign. Then, we have to train other educators/counselors or even ordinary people on the truth behind formula marketing.*
- *I think all participants who attended this training can work together for the Campaign.*
- *Thank you for the opportunity... I am willing to participate and take an active role to help you implement the campaign.*
- *To invite resource persons from an advertising agency in the campaign, perhaps?*

See Table 35

Table 35. Five Categories and Emergent Themes Arising from Qualitative Data (N=78)

Category I - The Strengths of the Training—Emergent Themes.

- **Theme – 1: Provides new knowledge and a new approach**
- **Theme – 2: A great/new training**
- **Theme – 3: Provides scientific evidence, references, data, and facts**

Category II - The Weaknesses of the Training - Emergent Theme.

- **Theme – 1: Time - too short**

Category III – How the Training Could be Improved—Emergent Themes.

- **Theme – 1: Adding more time**
-

*Table 35 (continued)**Category IV – What Was the Impact of the Training on You—Emergent Themes.*

- **Theme – 1: Being confident and motivated**
- **Theme – 2: Counter-marketing savvy and campaign enthusiasts**

Category V – What Other Recommendations/ Comments Do You Have to Share?—Emergent Themes.

- **Theme – 1: Anticipating the next step regarding the campaign**
 - **Theme – 2: Viewing another training as needed**
 - **Theme – 3: Devise campaign implementation plan**
-

Conclusion

This chapter presented the results of data analysis. Results were presented by research questions, providing organization to the chapter. This chapter presented results for both the quantitative and qualitative research questions. Chapter V will summarize the present study and provide a discussion of results. In addition, Chapter V will provide the implications of the findings, and recommendations for future research. Finally, Chapter V will provide a conclusion to the dissertation.

Chapter V

SUMMARY, DISCUSSION, IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSION

This chapter provides a summary of the dissertation research, as well as a discussion of the results, along with implications. This chapter will also provide recommendations for future research. This chapter will end with a discussion of the limitations of this research and offer a final conclusion.

Summary of the Research Study

The problem that this study addressed is the unethical and aggressive marketing of multinational corporations' commercial formula for infants and young children in Indonesia. This study evaluated a continuing education training module designed to empower breastfeeding educators/counselors to participate in and promote the campaign, specifically by exposing them to counter-marketing and related skills (e.g. brief motivational interviewing [Miller & Rollnick, 2013; Wallace, 2019]) that are codified in a training module (See Appendix H).

The study sample included 99 breastfeeding educators and counselors. The study sample was 97% female ($n = 93$) and 91% married ($n = 91$) with *a mean age of 36.84 years (Min 18, Max 60, SD = 7.36)*. Those ages 26 to 40 made up 72.6% of the sample

($n = 72$). *The mean of education level was 4.47 for a 4-year college degree (Min 1-High school graduate, Max 6-Medical Degree, $SD = 1.561$). The mean for education level was 4.47 for a 4-year college degree (min 1-High school graduate, max = 6-Medical Degree, $SD = 1.561$).*

For **rating the new 7-hour training**, *the mean was 4.81, or closest to “very good”* ($N = 99$, Min 3, Max 6, $SD = .528$). The majority of sample (78.7%, $n = 78$) rated the training as excellent or very good. Of note, regarding these ratings, for dose of exposure to the training, the vast majority of sample (**96%**, $n = 95$) reported that they **had attended all of the training** session. Third, for **rating the training materials**, *the mean was 4.47, or closest to “good”* ($N = 99$, Min 3, Max 6, $SD = .644$). Fourth, for **rating the trainer**, *the mean was 5.11, or closest to very good* ($N = 99$, Min 4, Max 6, $SD = .471$).

The study produced evidence the new training served as a brief intervention via paired t-tests. Here, the focus was on their **countermarketing knowledge**, as well as upon **four talking behaviors** as self-rated by the participants: **#1 = talking** to expectant and new mothers **about** the reasons to breastfeed their infant (i.e. exclusive and **optimal breastfeeding**), and all the benefits for their infant; **#2 = talking** to expectant and new mothers **about corporations’** inappropriate and **aggressive marketing of commercial infant formula** and other breast milk substitutes; **#3 = talking** to expectant and new mothers **about** how the aggressive **marketing** of commercial infant formula and other breast milk substitutes **includes billboards** with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula; and, **#4 = talking** to expectant and new mothers **about** the **risk** of becoming **dependent on expensive** commercial infant

formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant.

Regarding any significant changes from before the training to after the training for their self-ratings via paired t-tests, there is evidence that the training served as a brief intervention, given increases in the following five areas:

- 1-there was a significant difference in how they rated their *counter-marketing and campaign knowledge score*—as the mean of 1.64 (SD = .646) or closest to poor pre-training changed to 4.79 (SD = .54; $t = -39.834$, $df = 98$, $p = .000$) or closest to very good post-training—suggesting the training served as a brief intervention associated with an increased level of knowledge about counter-marketing and counter-marketing campaigns among participants.
- 2-there was a significant difference in the sample's *global stages of change score for performing the four talking behaviors*—as the mean of 4.089 (SD = .848) for action stage pre-training changed to 4.308 (SD = 0.636; $t = -6.103$, $df = 98$, $p = .000$) for still in an action stage post-training. (Note: Of the four talking behaviors of interest, two were significantly different post-training for stage of change (#2= corporations inappropriate marketing; #3= aggressive marketing/billboards)—in comparison to pre-training stage of change).
- 3-there was a significant difference in the sample's *global self-efficacy score for performing the four talking behaviors*, as the *pre-training mean of 4.288*, or closest to 60% confident (N = 99, SD = 1.030) changed to 5.565, or between 80% and 100% confident (N = 99, SD = .447; $t = -17.414$, $df = 98$, $p = .000$)—suggesting the training served as a brief intervention associated with an

increased level of self-efficacy to perform the four talking from pre- to post-training. (Note: For all four talking behaviors, the paired t-tests were statistically significant)

- 4-there was a significant difference in the sample's ***global knowledge score for performing the four talking behaviors***, as the before training mean of 5.013 for closest to moderately high knowledge (N = 99, SD = 1.015) changed to the after training mean of 6.441 for closest to high knowledge (N = 99, SD = .737; $t = -22.328$, $df = 98$ $p = .000$; Bonferroni Adjustment Significance, $.05/4 = .0125$). (Note: Knowledge to perform each of the four of the talking behaviors of interest increased significantly from pre- to post-training.
- 5-there was a significant difference in the sample's ***global motivation score for performing the four talking behaviors***, as the *before the training mean was 6.164, or high motivation* (N = 99, SD = .735) versus the *after training mean of 7.429 for very high motivation* (N = 99, SD = .475; $t = -25.124$, $df = 98$ $p = .000$; Bonferroni Adjustment Significance, $.05/4 = .0125$).
Motivation to perform each of the four of the talking behaviors of interest increased significantly from pre- to post-training

Pearson correlations were performed to explore relationships for selected independent variables (i.e., age, education, income, if employed) with the **after-training ratings for stage of change, self-efficacy, knowledge, and motivation for the four talking behaviors**. For the correlations, there were four comparisons, so the Bonferroni Adjustment Significance ($.05/4 = .0125$) involved the higher significance level of .0125.

1-First, **higher the Post-Training Stage of Change score**, then

- *the higher the age of participants* ($r = .306, p = .002$), achieving significance

2-Second, **higher the Post-Training Self-Efficacy score**, then

- *the higher the age of participants* ($r = .290, p = .004$), achieving significance

3-Third, **higher the Post-Training Knowledge score**, then

- *the higher the age of participants* ($r = .282, p = .005$), achieving significance
- *the higher the participants' level of education* ($r = .264, p = .008$), achieving significance
- *the higher the income* ($r = .378, p = .000$), achieving significance

4-Fourth, **higher Post-Training Motivation score** had no significant correlations with the independent variables.

Backward stepwise regression analysis results for the outcome variable of a **higher level of motivation for taking an active role in the proposed campaign** (i.e. *A Campaign to Expose the Truth about Becoming Independent on Commercial Formula and Breastfeeding Cessation*) was significantly predicted by:

- **Higher Pre-Training Self-Efficacy for talking** to expectant and new mothers **about** the reasons to breastfeed their infant (i.e. exclusive and **optimal breastfeeding**) ($b = .327, SEB = .118, p = .007$)
- **Lower Pre-Training Knowledge for talking** to expectant and new mothers **about corporations' inappropriate and aggressive marketing of commercial formula** ($b = -.270, SEB = .092, p = .004$)
- **Higher Post-Training Knowledge for taking an active role in the new counter-marketing Campaign** (i.e. *A Campaign to Expose the Truth about*

Becoming Independent on Commercial Formula and Breastfeeding Cessation) ($b = .392$, $SEB = .083$, $p = .000$).

For this regression model, $R^2 = 0.246$, and the adjusted R-square value for this model was 0.222, meaning that 22.2% of the variance was explained by this model.

There were also qualitative findings. First, with regard to the first sub-topic (i.e. 1-*What are the strengths and weaknesses of training?*), 78.8% ($n = 78$) of samples responded to the question; and among the responses, several themes emerged:

Category I - The Strengths of the Training—Emergent Themes. Themes for sharing the strength of the training included the following: **Theme – 1: Provides new knowledge and a new approach; Theme – 2: A great/new training; Theme – 3: Provides scientific evidence, references, data, and facts.**

Category II - The Weaknesses of the Training - Emergent Themes. Themes for sharing the weakness of the training included the following: **Theme – 1: Time - too short.**

Second, with regard to the second sub-topic (i.e. 2-*How could it be improved?*), 75.8% ($n = 75$) of the sample responded to the question; and among the responses, only one main theme emerged.

Category III – How the Training Could be Improved—Emergent Theme. The emergent theme for improving the training included the following: **Theme – 1: Adding more time.**

Third, with regard to the third sub-topic (i.e., *What was the impact of the training on you?*), the following themes emerged:

Category IV – What Was the Impact of the Training on You?—Emergent

Themes. Themes for sharing the impact of the training included the following: **Theme – 1: Being confident and motivated; Theme – 2: Counter-marketing savvy and campaign enthusiasts.**

Summary of the Statement of the Problem

The problem that this study addressed is the aggressive marketing of multinational corporations' commercial formula for infants and young children in Indonesia, and the need for 1) a counter-marketing campaign—*A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation*—and 2) a training designed to empower all those who provide education to mothers on breastfeeding to participate in and promote the campaign. The study was novel in utilizing a counter-marketing approach that is built in continuing education training for breastfeeding counselors and educators in addressing the problem as well as in preventing breastfeeding cessation by mothers—and, in integrating counter-marketing and brief motivational interviewing.

Summary of the Purpose and Objectives

The purpose of this study was to: 1) launch a counter-marketing campaign—*A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and*

Breastfeeding Cessation in Indonesia; and, 2) evaluate a continuing education training module designed to empower breastfeeding educators/counselors to participate in and promote the campaign, specifically by exposing them to counter-marketing and related skills (e.g. brief motivational interviewing [Miller & Rollnick, 2013; Wallace, 2019]) that are codified in a module. The study involved the creation and evaluation of the counter-marketing continuing education module, as well as a training booklet: i.e. *The Training Manual for Peer Educators and Advocates in A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation* (See Appendix H). The module is intended to serve as an important tool in the continuing education for breastfeeding educators/counselors in Indonesia so they may take an active and ongoing role in *A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation* in Indonesia. The module is further intended to identify trainers who will use the booklet to conduct additional trainings in their communities, while preparing educators to engage in advocacy (e.g., media advocacy, policy change) focused on the aggressive marketing of commercial formula by multinational corporations.

An additional purpose of the study was to identify significant predictors of the **study outcome variable of having post-training a higher level of motivation for taking an active role in the campaign** (i.e. *A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation* in Indonesia).

Summary of the Research Questions

Given a convenience sample of volunteers who are breastfeeding educators and counselors in Indonesia (N = 99) who completed the new 7-hour in-person training module, conducted in Indonesian by the Principal Investigator, the study answered the following research questions:

Quantitative Portion of the Study:

1-What are their demographic characteristics?

Part I: Basic Demographics (BD-7)

2-Before the 7-hour in-person training, what was their self-rating for level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns?

Part II: Before the Training: Rating of my Knowledge (BT-RMK-1)

3-Before the 7-hour in-person training, what were their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [1- *the reasons to breastfeed their infant (i.e., exclusive and optimal breastfeeding), and all the benefits for their infant*; 2- *corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes*; 3- *the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g., with white skin) – so women want to use the formula*; 4- *the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant*)]?

Part III: Before the Training: Stage of Change, Self-Efficacy, Knowledge and Motivation Levels

4-After the 7-hour in-person training, what was their self-rating for level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns?

Part IV: After the Training: Rating of my Knowledge

5-After the 7-hour in-person training, what were their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new

mothers about four key topics [1- *the reasons to breastfeed their infant (i.e., exclusive and optimal breastfeeding), and all the benefits for their infant*; 2- *corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes*; 3- *the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g., with white skin) – so women want to use the formula*; 4- *the risk of becoming dependent on expensive formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant*)]?

Part V: After the Training: Stage of Change, Self-Efficacy, Knowledge and Motivation Levels

6-After the 7-hour in-person training, regarding the new counter-marketing campaign—*A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation*—what were their self-ratings for stage of change, self-efficacy, knowledge and motivation for the behavior of *taking an active role in the campaign*?

Part VI: Self-Rating for Participating in the Campaign—Stage of Change, Self-Efficacy, Knowledge and Motivation Levels

7-After the 7-hour in-person training, what do they report as their dose of exposure to the training, and how do they rate the training session, training manual, and trainer?

Part VII: Dose of Exposure and Rating the Continuing Education Module

8-Were there any significant changes from before the training to after the training for their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [1- *the reasons to breastfeed their infant (i.e., exclusive and optimal breastfeeding), and all the benefits for their infant*; 2- *corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes*; 3- *the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g., with white skin) – so women want to use the formula*; 4- *the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant*)]?

9-What was the relationship between characteristics of participants, and higher after-training self-ratings for stage of change, self-efficacy and motivation for the behavior of talking to expectant and new mothers about four key topics [1- *the reasons to breastfeed their infant (i.e., exclusive and optimal breastfeeding), and all the benefits for their infant*; 2- *corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes*; 3- *the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g., with white skin) – so women want to use the formula*; 4- *the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant*)]?

10-What were the significant predictors of the outcome variable of a post-training higher level of motivation for taking an active role in the proposed campaign (i.e., *A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation*)?

Qualitative Portion of the Study:

11-When given the opportunity for open sharing, how did the women respond to open-ended questions (1-What are the strengths and weaknesses of the training; 2-how could it be improved?; 3-what was the impact of the training on you?; and, 4-what other recommendations or comments do you have to share?)?

Summary of the Literature Review

The World Health Assembly (WHA) 69.9 called for manufactures to end inappropriate, unethical, and aggressive marketing practices of all commercial formulas and complementary foods for infants and young children (The World Health Organization [WHO], 2016). The WHA 69.9 was issued subsequent to the International Code of Marketing of Breast-milk Substitutes (the Code), a global standard that regulates the marketing of breast milk substitutes, feeding bottles, and teats. Thus, this resolution aimed to protect continued and optimal breastfeeding practices from any forms of formula marketing that “would displace human milk” in the diet of infants and young children (Theurich, 2018, p. 273).

The Code prohibits any forms of marketing of infant formula and any breast-milk substitute products to the general public and mothers (WHO, 1981). Focusing on the promotion of breastfeeding, the Code clearly regulates that health care systems should not be used for advertisement, promotion, or other forms of marketing of breast-milk

substitutes. The Code restricts the baby food industry from giving gifts or free samples to mothers that promote the use of bottle-feeding, and industry representatives are not allowed to directly contact mothers. It also prevents the industry from providing donations and supplies to health care systems or their workers. Furthermore, the Code sets standards for information on breast-milk substitutes, as well as educational materials on infant feeding, pictures, and information on labels (WHO, 1981).

Nevertheless, the Code does not prevent the baby food industry from selling their products. Instead, it aims to ensure that the marketing distribution of any forms of breast-milk substitutes should not be conducted “in ways that may interfere with the protection and promotion of breast-feeding” (WHO, 1981, p. 6). In addition, the Code ensures that appropriate and unbiased information about infant feeding is available for mothers who only partially breastfeed, or do not do so at all (WHO, 1981). Above all, the Code is intended to protect breastfeeding

Further, the WHO, the United Nations International Children’s Fund (UNICEF), and International Baby Food Action Network (2016) suggested that inappropriate and unethical marketing of commercial formula and violations of the Code are prevalent globally. Multinational corporations of the baby food industry have increased marketing of commercial formula for children under two years of age, particularly in emerging economies where potential markets have grown due to large populations of children (Rollins et al., 2016). Commercial formula marketing impacts breastfeeding behaviors via multiple channels, including public advertising and “marketing to and through health facilities and providers, consumers, and policy makers” (Piwoz & Huffman, 2015, p.

381). Such marketing practices undermine breastfeeding confidence, and importantly, affect implementation of policies and regulations (p. 381).

Suboptimal breastfeeding is defined as breastfeeding that falls short of recommendations that mothers and infants exclusively breastfeed for the first six months of life, with continued breastfeeding for at least 12 months (American Academy of Pediatrics, 2012). In 2014, the cost of suboptimal breastfeeding in the United States was “\$3.0 billion for total medical costs, \$1.3 billion for non-medical costs, and \$14.2 billion for premature death costs” (Bartick et al., 2017, p. 7). Suboptimal breastfeeding has been associated with an annual excess of “3,340 premature maternal and child deaths,” of which 78% are maternal deaths due to myocardial infarction, breast cancer, and diabetes (p. 7).

Unlike other commodities, “baby milk formula seems to be resilient to market downturns” (Rollins et al., 2016, p. 495). In 2009, for example, when the global growth of real gross domestic product turned negative, commercial formula sales still constantly grew by 8% annually (p. 495). In 2014, the global sales of all types of formula were estimated at approximately US\$44.8 billion; the market value is projected to reach \$70.6 billion by 2019 (Rollins et al., 2016).

In Indonesia, the value of commercial formula milk sales nationally was nearly US\$240 million in 2014, compared to US\$110 million in Vietnam (Rollins et al., 2016). However, in high-income countries that have high-income markets, sales of infant formula for infants aged less than six months are static because of “market maturity, decreasing birth rates, and legislation on advertising and sales” (p. 496). The biggest

difference in market sales between high-income and middle-income countries is “due to large and increasing sales of follow-on and toddler milks” (Rollins et al., 2016, p. 496).

From 2009 to 2014, the market size of commercial formula in Indonesia was also expanding with the market growth value size of 96% (Vinje et al., 2017). More specifically, some growth was for “standard and follow-on milk formula” (p. 1338). The numbers of commercial formula advertisements were also high because “Indonesia had the largest number of newborns,” therefore there were notable numbers of advertisements both “on television and in print” (p. 1340).

Hidayana et al. (2017) found that, although national Code implementation measures are in place in Indonesia, there have been widespread violations of it by health workers and commercial formula companies, along with their representatives, in seven of the country’s provinces. Findings showed that the Code violations could be observed inside health facilities and in the general public. Overall, 72% of women in the study had seen “promotional materials for infant formula,” 68% had seen follow-on formula ads, 76% had seen growing-up formula ads, 36% had seen ads for complementary foods for infants under six months of age, and 2% had seen “promotional materials for drinks for infants under 6 months of age” (p. 168). Three-quarters of the women surveyed had seen advertising for all types of “breast-milk substitutes at health facilities” (p. 171). A small percentage of women (15%) reported receiving samples or gifts at health facilities, as well as receiving advice and information from health workers about using formula “to complement breast milk when breast-milk production is low” or “to increase the weight or nutritional status of their baby” (p. 168). Also, four out of 18 health facilities were found receiving free samples, materials, or equipment from different companies that

carried brand-name formula. These samples included infant formula, bottles, teats, milk for pregnant women, and special formula milk, whereas the materials included “leaflets, posters/calendars, stationery, growth charts, bags, baby boxes, incubators and (surprisingly) contraceptives” (Hidayana et al., 2017, p.169).

A role for a counter-marketing campaign in Indonesia also emerged from the literature review—justifying training breastfeeding educators/counselors to take an active ongoing role in *A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation* in Indonesia. For example, Palmedo et al. (2017) concluded that counter-marketing campaigns might be “most effective if they consider both individual and policy-level interventions” (p. 137). Allen et al. (2009) described the Truth Campaign as an effective national smoking prevention campaign designed for youth, using a counter-marketing strategy. Niederdeppe et al. (2004) provided evidence of a successful tobacco counter-marketing campaign directed at teens in Florida.

The literature also justified a role for a counter-marketing integrated with Wallace’s (2019) brief form of motivational interviewing—referred to, using the mnemonic acronym, CDMN, as follows:

- how asking about *concerns (C)* is supported by the Miller and Rollnick (2013) discussion of *focusing* as a process that involves the ethical navigation of goals;
- how *developing discrepancy (D)* is supported by their discussion of *evoking*, wherein strategic evoking presupposes a chosen goal and strategically guides the person toward it—strengthening motivation for change;
- how generating and reviewing a *menu of options (M)* is part of their discussion of the *planning* process; and,
- how asking about *next steps (N)* is also part of their discussion of the *planning* process. (p. 108)

Thus, it is possible to provide continuing education to breastfeeding educators on how to deploy this brief form of motivational interviewing, using Wallace's (2019) CDMN. It is possible for breastfeeding educators/counselors to integrate CDMN within their work for *A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation*.

Further, it is necessary for this continuing education, as a brief 7 hour intervention, to be rooted in firm theoretical foundation, including: the stages of change (SOC) construct from the Transtheoretical model (Prochaska & DiClemente, 1982); the self-efficacy construct from Social Cognitive Theory (Bandura, 1986); brief motivational interviewing (Miller & Rollnick, 2013, Wallace, 2019); and, health communication (Schiavo, 2013).

Summary of the Research Sample and Procedures

This present study utilized a pre-and post-study design to evaluate a new training. Both pre-and post-training paper surveys administered to a convenience sample of breastfeeding educators and counselors (N = 99) in two sites in Indonesia. Recruitment of the participants began on January 1, 2019 and was done through three different local providers: The Indonesia Maternal and Child Health Advocacy Group, The Indonesian Breastfeeding Counselors' Association, and The Indonesian Breastfeeding Mothers' Association in order to obtain a convenience sample with a desirable sample size. Each provider disseminated recruitment flyers via posting on the provider websites, internal mailing list, social media, as well as in the provider's office. Each participant who had

expressed an interest in the study was invited to attend a 7-hour, one-day training in the city where she/he lived. After conducting each of the trainings, all of the participants' survey data were manually entered into Qualtrics. Further, the data were downloaded directly from Qualtrics into SPSS.

Summary of Research Instrumentation

The following measures were used for the research instrumentation:

- Part I: Basic Demographics (BD-7)
- Part II: Before the Training: Rating of my Knowledge (BT-RMK-5)
- Part III: Before the Training: Stage of Change, Self-Efficacy, Knowledge and Motivation Levels (4)
- Part IV: After the Training: Rating of my Knowledge (AT-RMK-5)
- Part V: After the Training: Stage of Change, Self-Efficacy, Knowledge and Motivation Levels (4)
- Part VI: Self-Rating for Participating in the Campaign— Stage of Change, Self-Efficacy, Knowledge and Motivation Levels (SR-PC-SOC-SE-K-M-L-4)
- Part VII: Dose of Exposure and Rating the Continuing Education Module (4)
- PART VII: Final Evaluation and Recommendations (four qualitative questions)

Summary of Data Management and Data Analysis

The dataset was transferred from Qualtrics into SPSS 25.0 and analyzed via SPSS 25.0. In the quantitative portion of this study, data was analyzed via descriptive statistics (mean, standard deviation, frequency, percentage), inferential statistics (paired t-tests and Pearson Correlation), and regression analyses (backward stepwise regression). In the qualitative portion of this study, data was analyzed via the coding of emergent themes.

Summary and Discussion of Results by Research Question

This section will summarize and discuss each of the research questions. A summary of the key research findings will be presented first, followed by a discussion of the findings.

Summary and Discussion for Research Question #1:

What are the breastfeeding counselors and educators' demographic characteristics? (Part I: BD-7)

Summary #1. The study's convenience sample included 101 breastfeeding educators and counselors; however, only 99 participants completed the pre-and post-surveys ($N = 99$). The majority of the sample 96 (97%) was with *a mean age of 36.84 years* ($min = 18, max = 60, SD = 7.36$). More than half of the participants (61.1%, $n = 61$) were breastfeeding counselors, 58.6% ($n = 58$) were breastfeeding educators, 31.3%

(n=31) were professional health workers (e.g. a midwife, an MD, or a nurse), and 6.1% (n = 6) were health cadres. Over half of the participants (51%, n=51) had a 4-year college degree. *The mean for education level was 4.47 for a 4-year college degree (min 1-High school graduate, max 6-Medical Degree, SD = 1.561). The sample had a mean monthly household income of IDR 6,000.000 to IDR 10,500.000 (SD = 1.55).*

Discussion #1. The study successfully recruited an important target group, as supported in the literature (Bai et al., 2009; Patel & Patel, 2016). For example, the sample of this study included a large percentage (61.1%) of breastfeeding counselors and educators (58.6%). Breastfeeding educators and lactation counselors were identified as playing an important role in increasing breastfeeding initiation (Bai et al., 2009; Patel & Patel, 2016). Breastfeeding educators can contribute to improving the duration of exclusive breastfeeding by addressing mothers' beliefs regarding breastfeeding (Bai, et al., 2009). Further, Patel and Patel (2016) found that interventions involving breastfeeding counselors and educators demonstrated a beneficial impact in increasing breastfeeding initiation.

Moreover, 31.3% of participants in this study also identified themselves as professional health workers (e.g., a midwife, an MD, or a nurse). This finding aligned with relevant literature. Mothers identified health professionals as being the most common sources of information on infant feeding for them (Flaherman et al., 2018; Pries et al., 2016).

Summary and Discussion for Research Question #2:

Before the 7 hour in-person training, what were their self-rating for level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns? (Part II: BT-RMK-5)

Summary #2. For the sample ($N = 99$), *the mean self-rating for the participants' counter-marketing and campaign knowledge before they participated in the 7-hour training (pre-training knowledge about counter-marketing) was 1.65 for closest to poor* (min = 1-Very Poor, max = 4-Good, $SD = .646$). Almost half of participants (48.5%, $n = 48$) rated their knowledge as poor, and 44% ($n = 44$) rated it as very poor.

Discussion #2. Prior to their participation in the training, breastfeeding counselors and educators in this present study reported a lack of knowledge about counter-marketing. In fact, 48.5% of participants rated their knowledge about counter-marketing as “poor” ($n = 48$); and, 44% ($n = 44$) rated their knowledge about counter-marketing as “very poor” prior to their participation in the study. This finding aligned with a study that assessed the knowledge level of Korean American women on cervical cancer by using a mobile-health intervention (Lee et al., 2014). Prior to their study intervention, participants had a low level of knowledge regarding counter-marketing ($N = 30$, Mean = .33, $SD = .36$) (Lee et al., 2014).

Summary and Discussion for Research Question #3:

Before the 7 hour in-person training, what were their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [1- the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant; 2- corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes; 3- the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula; 4- the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant)] (Part III: BT- SOC-SE-K-M-4)

Summary #3. The self-ratings may be discussed for stages of change, self-efficacy, knowledge and motivation for the four talking behaviors.

Pre-training: Stage of Change Scale (BT-SOC-4). The subscale obtained scores that ranged from 1.00 (precontemplation stage) to 5.00 (maintenance stage). *The global mean score for this sample (N = 99) was 4.087*, indicating **the entire sample was closest to action** when examining all four key talking behaviors pre-training.

Before training: Self-Efficacy (BT-SE-4). The subscale obtained scores from 1.00 (0% confident) to 6.00 (100% confident), indicating their confidence to perform the targeted key behavior. *The global mean score for this sample (N=99) was 4.29*, suggesting the entire sample **was closer to 60% confident (moderately high self-efficacy)** when examining all four talking behaviors pre-training.

Before-Training: Knowledge (BT-K-4). The subscale obtained scores from 1.00 (non-existent, or none at all) to 8.00 (extremely high) indicating their knowledge to perform the targeted key behavior. *The global mean score for this sample (N = 99) was 5.012*, suggesting **the entire sample was closest to moderate knowledge** when examining all four key talking behaviors pre-training.

Before-Training: Motivation (BT-M-4). The subscale obtained scores from 1.00 (none existent or none at all) to 8.00 (extremely high), indicating motivation to perform the targeted four key talking behaviors. *The global mean score for this sample (N = 99) was 6.65*, or closest to very high motivation for all four key behaviors—before training.

Discussion #3. The pre-training global stage of change score *was a mean of 4.087 (N=99, SD= .848)*, demonstrating that breastfeeding educators and counselors were in an **action stage of change** for the four talking behaviors to new and pregnant mothers about the four key topics. This finding indicates the high level of readiness of the majority of

the participants to talking to new and pregnant mothers about the four key topics, even before they were exposed to this present study training.

Similar global stage of change scores were used in prior studies that use a pre- and post-intervention study design. Garcia (2013) assessed the stage of change level of 188 men who have sex with men (MSM) for performing six key sexual risk reduction behaviors. The pre-video intervention mean score of the sample was suggestive of being between the preparation and action stages, but closer to the action stage for performing the seven risk reduction behaviors. In contrast, Burnham (2017) found that the study's sample combined pre-video global stage of change score was a mean of 3.007 or the preparation stage of change for performing the six key risk reduction prior to watching this study's e-health video intervention.

These different ranges for the stages of change across different studies serve to demonstrate something of value: i.e. utilizing the stages of change (SOC) construct of the transtheoretical model, as in this present study, has value by fostering understanding of the process of behavior change across five stages of change (DiClemente & Velazquez, 2002).

Moreover, the **self-efficacy for engaging in the four talking behaviors** for the breastfeeding counselors and educators was **moderately high self-efficacy pre-training**, even before they actually participated in the training. The self-efficacy scale was also utilized in the sexual risk reduction behaviors studies. Garcia (2013) found the overall pre-video self-efficacy mean score for the sample of MSM was 5.063 (N = 188, Min 1, Max 6, SD =1.013) for high self-efficacy in performing the seven risk reduction behaviors.

Furthermore, the **global Motivation scale mean** for engaging in the four talking behaviors prior to the training indicated **high motivation pre-training** for talking to new and pregnant mothers about four key topics of interest ($N = 99$) was 6.65 ($SD = .735$). This finding regarding motivation corresponds with the finding that participants had a high level of readiness to talk about the four key topics of interest. DiClemente & Prochaska (1985) suggested that motivation is commonly conceptualized as readiness to change. According to the transtheoretical model that guided this present study, different levels of motivation corresponded with different stages of change.

Regarding the knowledge level of this study's participants, the finding showed that the majority of the sample had **moderate knowledge prior to the training**. There is a dearth of research studies that have examined knowledge level for breastfeeding counselors and educators on the specific key behaviors of interests in the present study. However, Ingram (2006) conducted research on breastfeeding management in primary care in the UK to 29 health professionals and measured knowledge level on breastfeeding related topics. The results indicated that the sample had high knowledge levels of breastfeeding related topic even before they were exposed to education materials in that study.

Summary and Discussion for Research Question #4.

After the 7 hour in-person training, what were their self-rating for level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns? (Part IV: AT-RMK-1)

Summary #4. For the sample, *the mean self-rating* for the participants' **post-training counter-marketing and campaign knowledge** *after* they participated in the 7-

hour training was 4.79, or **closest to very good** (Min = 3-fair, Max = 6-excellent, SD = .54). Over half of participants (69.7%, n = 69) rated their knowledge as very good.

Discussion #4. These findings indicated that breastfeeding counselors and educators experienced a high level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns after they were exposed to the training. This is consistent with the previous pre-and post-intervention study measuring knowledge level by Lee et al., (2014) with Korean American women on cervical cancer. Using a mobile-health intervention, participants in the Lee et al (2014) study demonstrated a high level of knowledge post-intervention (N = 30, Mean = .92, SD = .17).

Summary and Discussion for Research Question #5.

After the 7-hour in-person training, what were their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about the four selected key topics? (Part V: AT-SOC-SE-K-M-4)

Summary #5. The self-rating after the training were, as follows:

Post-Training: Stage of Change Scale (AT-SOC-4). After exposure to the 7-hour training, the subscale obtained scores that ranged from 1.00 (precontemplation) to 5.00 (maintenance). *The global mean score for this sample (N = 99) was 4.31, or closest to an action stage* when examining all four key talking behaviors post-training.

After Training: Self-Efficacy (AT-SE-4). The subscale obtained scores from 1.00 (0% confident) to 6.00 (100% confident) indicating their confidence to perform the targeted key behavior. *The global mean score for this sample (N = 99) was 5.5, suggesting the entire sample was between 80% (high self-efficacy) and 100% confident (very high self-efficacy)* when examining all four key behaviors post-training.

After Training: Knowledge (AT-K-4). The subscale obtained scores from 1.00 (non-existent, or none at all) to 8.00 (extremely high), indicating their knowledge to perform the targeted key talking behavior. *The global mean score for this sample (N = 99) was 6.44*, indicating **the entire sample was closest to moderate knowledge** when examining all four key behaviors post-training.

After Training: Motivation (AT-M-4). The subscale obtained scores from 1.00 (none existent or none at all) to 8.00 (extremely high), indicating their motivation to perform the targeted four key behaviors. *The global mean score for this sample (N=99) was 7.427*, indicating **the entire sample was closest to very high motivation** when examining all four key behaviors post-training.

Discussion #5. Findings from the **global stage of change subscale after the training** indicated the *sample had a global mean score of 4.31 (N = 99, SD = .637)*, indicating the entire sample was **an action stage of change**. Findings from Garcia (2013) used a similar global stage of change score after a video viewing intervention, which was closest to the action stage (N = 188, mean = 3.736, Min 1, Max 5, SD = 1.229) for performing six risk-reduction behaviors of interest in the study. On the other hand, after a video viewing intervention, Burnham (2017) indicated the sample was in the preparation stage (N = 103, Mean = 3.128, Min 1-precontemplation, Max 5- maintenance, SD = 0.863). Again, these varied stages of change demonstrate that utilizing the stages of change construct of the transtheoretical model guides understanding of the process of behavior change through five stages of change (DiClemente & Velazquez, 2002).

Moreover, the confidence level after participating in the training exhibited by the breastfeeding counselors and educators demonstrated a high self-efficacy in doing for key

behaviors of interest. When applying this self-efficacy in sexual risk behavior reduction studies, similar results are reflected. Garcia (2013) found that the overall post-video self-efficacy mean score for the sample of MSM was of 5.259 ($N = 188$, Min 1, Max 6, $SD = 1.013$), indicating the sample had high self-efficacy to perform the behaviors of interest in the study. In the present study, the **global mean score for self-efficacy** for this sample ($N = 99$) was 5.5, suggesting **the entire sample was between 80% (high self-efficacy) and 100% confident (very high self-efficacy)** when examining all four key behaviors post-training. Meanwhile, in contrast, Burnham (2017) found that the sample of that study remained from pre- to post- video viewing intervention in the mean category of the preparation stage.

Also, results for the **global motivation subscale after the training** indicated that the sample in this present study had **very high motivation** for talking to new and pregnant mothers about four key topics of interest ($N = 99$) was 7.427 ($SD = .048$).

This result still corresponds with the high level of readiness for breastfeeding educators and counselors to perform the four key talking behaviors of interest found in this present study. These findings may reflect how varying motivation levels correspond with different stage of change—whether the lack of motivation characterizing those in the precontemplation stage to the considerably higher level of motivation for those in the action and maintenance stages of DiClemente and Prochaska (1985).

Regarding the **global mean knowledge level** of 6.66 ($SD = .737$) of this study's participants, the sample had **high knowledge** after the training 6.44 ($SD = .737$). This result may be comparable to Ingram's (2006) finding that the knowledge level regarding breastfeeding related topics of 80 health professionals was also high.

Summary and Discussion for Research Question #6.

After the 7 hour in-person training, regarding the new counter-marketing campaign—A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation, what are their self-ratings for stage of change, self-efficacy and motivation for the behavior of taking an active role in the campaign?
(Part VI: SR-PC-SOC-SE-K-M-L-1)

Summary #6. The self-ratings after training for the behavior of taking an active role in the campaign were, as follows:

Stage of Change Scale. For stage of change (i.e. for the behavior of taking an active role in the campaign - *A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation*) the mean of the sample was 3.15, or **the entire sample was closest to a preparation stage**, N = 99, Min 3, Max 5, SD = .522—after the training.

Self-Efficacy Scale. For self-efficacy (i.e. for the behavior of taking an active role in the campaign - *A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation*), the mean of the sample was 5.26, **or closest to 80% confident** (N = 99, Min 4, Max 6, SD = .572)—after the training.

Knowledge. For the knowledge (i.e. required for the behavior of taking an active role in the campaign - *A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation*), the mean of the sample was 6.01, **or closest to high knowledge**, N = 99, Min 4, Max 8, SD = .931.—after the training.

Motivation. For motivation (i.e. for the behavior of taking an active role in the campaign - *A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation*), the mean of the sample was 7.32, or very high motivation (N = 99, Min 6, Max 8, SD = .636)—after the training.

Discussion #6. These findings indicated that the new in-person counter-marketing training designed for breastfeeding educators and counselors served as a brief intervention where participation (sample dose=participation in *all* of training) was associated with post-training high scores in areas such as stages of change and self-efficacy. This is similar to the video viewing intervention study of Burnham (2017) where paired t-tests showed there were significant increases from pre- to post-video for both stages of change and self-efficacy to perform risk-reduction behaviors of interest in that particular study. In the Garcia (2013) study, mean global scores for both stages of change and self-efficacy to perform HIV and STI risk-reduction behaviors changed; however, there was no significant increase from pre- to post-training.

Summary and Discussion for Research Question #7.

After the 7 hour in-person training, what do they report as their dose of exposure to the training, and how do they rate the training session, training manual, and trainer? (Part VII: DOE-1; and, RTM-1)

Summary #7. First, for dose of exposure to the training, the vast majority of sample (96%, n=95) reported that they attended all of the training session. Second, for rating the training, *the mean was 4.81, or closest to “very good”* (N = 99, Min 3, Max 6, SD = .528). The majority of sample (78.7%, n = 78) rated the training as excellent or very good. Third, for rating the training materials, *the mean was 4.47, or closest to “good”* (N = 99, Min 3, Max 6, SD = .644). Fourth, for rating the trainer, *the mean was 5.11, or closest to very good* (N = 99, Min 4, Max 6, SD = .471). Some 76.8% (n = 76) rated the trainer as very good.

Discussion #7. By way of comparison, even though the comparison intervention is a video-viewing intervention, Burnham (2017) reported a similar dose of exposure as the

present study: i.e. 87.4% (N=90) reported they watched all of the video, while 12.6% (N=13) reported watching most of the video. In Garcia (2013), also for a video-viewing intervention, 93.6% (n=176) watched all the videos.

Rating the video in video-viewing interventions is comparable to rating the training and the trainer—which had mean ratings of “good” and “very good,” respectively, in the present study. In Burnham (2017), rating of the video achieved a mean score of 4.17, or good (Min 1-very poor, Max 6-excellent, SD =1.205). In Garcia (2013) where 7 videos were rated, each of which taught on 7 topics, a global mean of 3.851 (N = 188, Min 1, Max 6, SD = 1.189) indicated the sample rated all seven videos as a whole closest to the score of “good.” Hence, all three brief interventions—Garcia (2013), Burnham (2017), and the present study—are associated with “good” ratings.

Summary and Discussion for Research Question #8.

Were there any significant changes from before the training to after the training for their self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [1- the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant; 2- corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes; 3- the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula; 4- the risk of becoming dependent on expensive infant formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant)]

Summary #8. Paired t-tests were conducted, with findings, as follows:

Stages of Change Paired T-Test. Using paired t-tests, when examining all four key talking behaviors of interest in a Global Stage of Change Score, the *before training participation mean was 4.089 or an action stage* (N = 99, SD = .848) versus the *after training participation mean of 4.308 that was still an action stage* (N = 99, SD = .636),

as a difference that was statistically significant ($t = -6.103$, $df = 98$ $p = .000$). The post-training mean stage of change score was significantly higher than the pre-training mean stage of change score.

Self-Efficacy Paired T-Test. Regarding confidence to perform all four key talking behaviors of interest, or regarding their global Self-Efficacy Score, the *pre-training mean* was 4.288, **or 60% confident** ($N = 99$, $SD = 1.030$); this was compared to the *post-training mean* of 5.565, **or between 80% and 100% confident** ($N = 99$, $SD = .447$); and, the difference was statistically significant ($t = -17.414$, $df = 98$ $p = .000$). Global self-efficacy to perform the four talking behaviors of interest increased significantly from pre- to post-training.

Knowledge Paired T-Test. Regarding the knowledge score for all four key talking behaviors of interest, the *before training mean* was 5.013, **or closest to moderately high knowledge** ($N = 99$, $SD = 1.015$); this was compared to the *after training mean* of 6.441, **or closest to high knowledge** ($N = 99$, $SD = .737$), and the difference was statistically significant ($t = -22.328$, $df = 98$ $p = .000$; Bonferroni Adjustment Significance- $.05/4 = .0125$). Knowledge to perform all four of the talking behaviors of interest increased significantly from pre- to post-training.

Motivation Paired T-Test. The sample's mean Global Motivation Score for performing all four key talking behaviors of interest, *before the training*, was 6.164, **or high motivation** ($N = 99$, $SD = .735$) versus the *after training mean* of 7.429 **for very high motivation** ($N = 99$, $SD = .475$), as a difference that was statistically significant ($t = -25.124$, $df = 98$ $p = .000$), given the Bonferroni Adjustment Significance ($.05/4 = .0125$).

Motivation to perform each of the four talking behaviors of interest increased significantly from pre- to post-training.

Discussion #8. These findings demonstrated that participation in a seven-hour training was associated with significant improvement in the participants' level of stage of change, self-efficacy, knowledge, and motivation to engage in four key talking behaviors of interest. Similarly, Burnham (2017) found that participation in a video-viewing intervention was associated with a significant change from pre- to post-intervention for **global stage of change** and **global self-efficacy** for performing six key risk reduction behavior. On the other hand, Garcia (2013) found that exposure to a video-viewing intervention was not associated with significant increases from pre- to post-intervention for stage of change to perform seven behaviors; however, Garcia's (2013) sample had "no place to go"—since at pre-intervention the group was already in the action stage. However, Garcia (2013) also found no increased in mean self-efficacy to perform the seven behaviors, again, reflecting starting out at 80% confident as a pre-training mean; and, having no place to go by ending up at 80% confident after the training as a mean.

Also conducting a video-viewing intervention on the 7 type 2 diabetes self-management behaviors, Gesinde (2019) found significant increases from pre- to post-intervention for: stage of change for performing the 7 diabetes self-management behaviors ($p = .008$); self-efficacy for performing the 7 diabetes self-management behaviors ($p = .000$); and, motivation for performing the 7 diabetes self-management behaviors ($p = .000$).

Summary and Discussion for Research Question #9.

Research Question #9: What was the relationship between characteristics of participants, and higher after training self-ratings for stage of change, self-efficacy, knowledge, and motivation for the behavior of talking to expectant and new mothers about four key topics [1- the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant; 2- corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes; 3- the aggressive marketing of commercial infant formula and breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula; 4- the risk of becoming dependent on expensive formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant)]?

Summary #9. Pearson correlations were performed to explore relationships for selected independent variables (i.e., age, education, income, if employed) with the **after training ratings for stage of change, self-efficacy, knowledge, and motivation for the four talking behaviors**. For the correlations, there were four comparisons, so the Bonferroni Adjustment Significance ($.05/4 = .0125$) involved the higher significance level of .0125.

1-First, **higher the Post-Training Stage of Change score**, then

- *the higher the age of participants* ($r = .306, p = .002$), achieving significance

2-Second, **higher the Post-Training Self-Efficacy score**, then

- *the higher the age of participants* ($r = .290, p = .004$), achieving significance

3-Third, **higher the Post-Training Knowledge score**, then

- *the higher the age of participants* ($r = .282, p = .005$), achieving significance
- *the higher the participants' level of education* ($r = .264, p = .008$), achieving significance
- *the higher the income* ($r = .378, p = .000$), achieving significance

4-Fourth, **higher Post-Training Motivation score** had no significant correlations with the independent variables.

Discussion #9. The Pearson correlations showed that the older the age of participants, then: the **higher the Post-Training Stage of Change score; higher the Post-Training Self-Efficacy score; and, higher the Post-Training Knowledge score.**

Also, the **higher the Post-Training Knowledge score, then the higher the age of participants** ($r = .282$ $p = .005$), **the higher the participants' level of education** ($r = .264$, $p = .008$), and **the higher the income** ($r = .378$, $p = .000$).

Of note, Garcia (2013) had non-significant trends ($p < .05$) where, the higher the global stage of change, then the older the age ($p = .025$). And, the higher the global self-efficacy, then the higher the level of education ($p = .048$), for example.

Burnham (2017) had non-significant trends where the higher the pre-video knowledge (on HPV), then the higher the age ($p = .021$), and the higher the level of education ($p = .036$), and the higher they rated the intervention (i.e. video rating, $p = .037$). These are just partial findings, being trends that may help to frame the current study's findings.

Summary and discussion for research question #10:

What were the significant predictors of the outcome variable of a post-training higher level of motivation for taking an active role in the proposed campaign (i.e. A Campaign to Expose to the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation)?

Summary #10. Backward stepwise regression analysis results showed that **higher level of motivation for taking an active role in the proposed campaign** (i.e. A Campaign to Expose the Truth about Becoming Independent on Commercial Formula and Breastfeeding Cessation) was significantly predicted by:

- **Higher Pre-Training Self-Efficacy for talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding)** ($b = .327$, $SEB = .118$, $p = .007$)
- **Lower Pre-Training Knowledge for talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial formula** ($b = -.270$, $SEB = .092$, $p = .004$)
- **Higher Post-Training Knowledge for taking an active role in the new counter-marketing Campaign** (i.e. *A Campaign to Expose the Truth about Becoming Independent on Commercial Formula and Breastfeeding Cessation*) ($b = .392$, $SEB = .083$, $p = .000$).

For this regression model, $R^2 = 0.246$, and the adjusted R-square value for this model was 0.222, meaning that 22.2% of the variance was explained by this model.

Discussion #10. The backward stepwise regression analysis found that the *higher pre-training self-efficacy* for talking to mothers about the reasons to breastfeed and all the benefits for their infant was one of the predictors for *higher level of motivation* for taking an active role in the proposed campaign. These findings were supported by Bandura's Social Cognitive Theory that guided this present study. Bandura (1986) suggested that "self-efficacy" as well as "knowledge, transformational operations, and constituent skills" are important for performing behaviors of interest (p. 390). Thus, it may also follow from Bandura's (1986) theory that knowledge also plays a role in these relationships, as also shown in the regression

Summary and Discussion for Research Question #11.

When given the opportunity for open sharing, how do the women respond to open ended questions (1-What are the strengths and weaknesses of training; 2-How could it be improved? 3-What was the impact of the training on you?; and, 4-What other recommendations or comments do you have to share?)

Summary #11. First, with regard to the first sub-topic (i.e. 1-What are the strengths and weaknesses of training?), 78.8% (n=78) of samples responded to the question; and among the responses, several themes emerged:

- **Category I - The Strengths of the Training—Emergent Themes.** Themes for sharing the strength of the training included the following: **Theme – 1: Provides new knowledge and a new approach; Theme – 2: A great/new training; Theme – 3: Provides scientific evidence, references, data, and facts.**
- **Category II - The Weaknesses of the Training - Emergent Themes.** Themes for sharing the weakness of the training included the following: **Theme – 1: Time - too short.**

Second, with regard to the second sub-topic (i.e. 2-How could it be improved?), 75.8% (n=75) of the sample responded to the question; and among the responses, only one main theme emerged:

- **Category III – How the Training Could be Improved—Emergent Theme.** The emergent theme for improving the training included the following: **Theme – 1: Adding more time.**

Third, with regard to the third sub-topic (i.e., What was the impact of the training on you?), the following themes emerged:

- **Category IV – What Was the Impact of the Training on You?—Emergent Themes.** Themes for sharing the impact of the training included the following:

Theme – 1: Being confident and motivated; Theme – 2: Counter-marketing savvy and campaign enthusiasts

Discussion #11. The qualitative portion of this study provided feedback regarding the training, training materials, as well as the trainer. The majority of the participants suggested that the training provided them with a new approach (i.e. counter-marketing), as well as knowledge and information that they had never received before. Furthermore, the use of evidence-based approaches as a basis for public health advocacy was noted as one of the strengths of this study.

Findings indicated that the counter-marketing continuing education training utilized in the present study was a novel approach to address the unethical and aggressive marketing of commercial formula as well as to guide counselors and educators to help new and expectant mothers in making a decision to avoid the risk of cessation of breastfeeding.

In this present study, breastfeeding counselors and educators expressed a prominent concern about insufficient time for hands-on practice in the training (i.e.

Category II - The Weaknesses of the Training - Emergent Themes: Theme – 1-Time - too short; and, Category III – How the Training Could be Improved—Emergent Theme: Theme – 1-Adding more time.) This concern might be explained by the depth and the number of sub-topics that were covered in the training materials. Also, it is possible that breastfeeding counselors and educators commonly received training that heavily utilized hands-on practice or practical support in helping mothers with breastfeeding challenges, as explained in a systematic review (Gavine et al., 2016).

Further, consistent with this study's quantitative findings, the majority of participants expressed achieving an increased knowledge about topics that were covered in the counter-marketing continuing education training. They also found that the training positively impacted their confidence and motivation in working with and helping mothers understand the negative impact of commercial formula marketing on infants and mothers' health (i.e., **Category IV – What Was the Impact of the Training on You?—**

Emergent Themes: Theme – 1-Being confident and motivated; Theme – 2-Counter-marketing savvy and campaign enthusiasts). Again, these findings aligned with the Social Cognitive Theory that guided this study as well as quantitative data results of this study.

The last open-ended question of this study that asked about the participants' other recommendations or comments revealed there is a need for follow-up activities, included a training or workshop, and a plan of actions at the local level (i.e., **Category V – What Other Recommendations/ Comments Do You Have to Share?—Emergent Themes: Theme – 1-Anticipating the next step regarding the campaign; Theme – 2-Viewing another training as needed; and, Theme – 3-Devise campaign implementation plan.**

Implications and Recommendations

A number of implications and recommendations arise from the study findings, as follows:

- The main implication of the study findings is that the study achieved the stated purpose to: 1) launch in Indonesia a counter-marketing campaign—*A Campaign to*

- Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation*; and, 2) evaluate a continuing education training module designed to empower breastfeeding educators/counselors to participate in and promote the campaign, specifically by exposing them to counter-marketing and related skills (e.g. brief motivational interviewing [Miller & Rollnick, 2013; Wallace, 2019]) that are codified in the training manual. Further, that training manual was highly rated as “good,” as was the overall training and the training leader.
- Another implication of the findings is that the study achieved other specific objectives, which included determining the following: i.e., If after the training, the breastfeeding educators/counselors rated themselves as having the knowledge and confidence to: 1- talk to pregnant and new mothers about corporations’ inappropriate and aggressive marketing of formula, and the risk of becoming dependent on expensive formula and losing the ability to produce their own breast milk: and, 2- participate in a counter-marketing campaign in Indonesia called “*A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation.*” The overwhelming response by the participants in the study was that they did rate themselves as having the knowledge and confidence to engage in the desired talking behavior on counter-marketing and to participate in the proposed campaign. For knowledge to perform all four of the talking behaviors of interest, their post-training mean was 6.441 was for **high knowledge** (N = 99, SD = .737); and, knowledge to perform all four of the talking behaviors of interest increased significantly from pre- to post-training. For confidence, their post-training global self-efficacy for performing the four talking behaviors was a mean of 5.565, or

between 80% and 100% confident ($N = 99$, $SD = .447$); and, global self-efficacy to perform the four talking behaviors of interest increased significantly from pre- to post-training. Thus, study objectives were achieved through the new training.

- The qualitative data supports the implication of the study that the training participants emerged with high knowledge and very high self-efficacy, given these themes:

Category IV – What Was the Impact of the Training on You?—Emergent

Themes: Theme – 1: Being confident and motivated; and, Theme – 2: Counter-marketing savvy and campaign enthusiasts.

- Another implication of the study is that the new continuing education training module can be described as an evidence-based approach, as a brief training intervention associated with significant increases from pre- to post-training in the following for training participants:
 - their **1-counter-marketing and campaign knowledge score** (i.e. as mean of 1.64, $SD = .646$ for closest to poor pre-training changed to 4.79, $SD = .54$) or closest to very good post-training ($t = -39.834$, $df = 98$, $p = .000$);
 - their **2-global stages of change score for performing the four talking behaviors** (i.e. as the mean of 4.089, $SD = .848$, for action stage pre-training changed to 4.308, $SD = 0.636$, or still action stage, but higher score; $t = -6.103$, $df = 98$, $p = .000$);
 - their **3-global self-efficacy score for performing the four talking behaviors** (i.e. as the pre-training mean of 4.288 for 60% confident, $SD = 1.030$, changed to 5.565 for between 80% and 100% confident post-training, $SD = .447$; $t = -17.414$, $df = 98$, $p = .000$);

- their **4-global knowledge score for performing the four talking behaviors** (i.e. as the pre-training mean of 5.013 for moderately high knowledge, SD = 1.015, changed to 6.441 for high knowledge post-training, SD = .737; $t = -22.328$, $df = 98$, $p = .000$); and,
- their **5-global motivation score for performing the four talking behaviors** (i.e. pre-training mean was 6.164 for high motivation, SD = .735, changed to post-training mean of 7.429 for very high motivation, SD = .475; $t = -25.124$, $df = 98$, $p = .000$).
- Consistent with the implication of the findings that this new training has emerged as an evidence-based approach to training in counter-marketing and motivational interviewing, as per the quantitative data, the qualitative data underscores this: i.e. **Category I - The Strengths of the Training—Emergent Themes: Theme – 1: Provides new knowledge and a new approach; Theme – 2: A great/new training; Theme – 3: Provides scientific evidence, references, data, and facts.**
- There are additional implications of the findings for improving the training, as despite this impressive impact from pre- to post-training on all five of the above variables, the training needs to be improved. The breastfeeding counselors and educators expressed a prominent concern about insufficient time for hands-on practice in the training. Indeed, the training likely needs to be expanded into a two-day training. This relates to other data: **Category II - The Weaknesses of the Training - Emergent Themes: Theme – 1: Time - too short.** Also consider this data: **Category III – How the Training Could be Improved—Emergent Theme: Theme – 1: Adding more time.**

- As a recommendation, a coalition in Indonesia with the local sponsors of the study (see Appendix I) might best determine how to support a training that spans a longer period of time, including time for hands-on-practice.
- A strong recommendation is for a coalition in Indonesia with the local sponsors of the study (see Appendix I) playing a key role, engaging in and supporting on the local level the work of the counter-marketing campaign—*A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation*. New partners and sponsors in Indonesia could also be invited to join in the campaign. This recommendation relates to the Principal Investigator's service as the trainer in the new training in Indonesia, and her analyzing her data in the United States—and the delay in her planned return to Indonesia for ongoing campaign activities. This 5-month delay stands out, given the qualitative themes, below, that underscore why a coalition in Indonesia with the local sponsors of the study (see Appendix I) playing true partnership roles is needed for an effective, sustained local and national counter-marketing campaign. The training could also be improved by there being a clearer plan for training participants' more immediate engagement in the campaign post-training, while again, suggesting the role of a coalition of Indonesia-based partners and sponsors, given the themes and quotes, below:

- **Category V – What Other Recommendations/ Comments Do You Have to Share?—Emergent Themes: Theme – 1: Anticipating the next step regarding the campaign:**

*I am looking forward to **the next follow up activity/real campaign** in the near future; A **concrete follow up activity on when the campaign** will start. Also, would love to have a follow-up training/workshop before starting the campaign; A **plan of action** is needed to be set up; I think more Indonesians*

*need to attend training like this. And we need to have **follow up events/activities in** real advocacy work, to implement what we learned from this training; Please count me in if you have another **follow up training and/or activities/campaign/advocacy**; We **should have follow-up activities** or advocacy work in real life. Formula marketing in my region is really aggressive. We also know that the baby food companies work closely with certain policymakers. We need to generate public opinion addressing specific conflict-of-interest practices as well.*

Recommendations for Future Research

Future research is needed that systematically evaluates ongoing, future trainings in Indonesia with the support of the local sponsors. These may be future one-day trainings, or, ideally, two-day trainings with more time for hands-on-practice, as per the qualitative data's recommendations. Research can use the same tools and expand the body of quantitative and qualitative data on the training module.

Research could also provide data for policy initiatives that move toward compliance with the Code. Changes in adherence to the Code and in policy could also be the focus of longitudinal research. Other research could investigate national attitudes on the Code and findings could be used in policy change initiatives.

The study may be replicated with a truly nationally representative sample of breastfeeding educators and counselors, as well as other professional categories (e.g. midwives, nurses, etc.). This would require proper funding and support across Indonesia—yet could have an even greater impact in protecting breastfeeding.

Ultimately, funding may permit scaling up the new counter-marketing training intervention in other countries that are also being negatively impacted by aggressive

marketing of commercial infant formula. Future research can use the same tools, or linguistically and culturally adapted tools and training materials, in evaluation research of those training programs established in other countries.

Future research also needs to include new tool and new variables, in order to account for a greater amount of the variance in a regression model. While only accounting for 22.2% of the variance in the model, regression analyses showed that significant predictors of participants having a higher motivation for taking an active role in the proposed campaign were: having higher pre-training self-efficacy for talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding); having a lower pre-training knowledge for talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial formula; and, having higher post-training knowledge for taking an active role in the new counter-marketing campaign. Again, for this regression model, $R^2 = 0.246$, and the adjusted R-square value for this model was 0.222, meaning that 22.2% of the variance was explained by this model.

Hence, future research needs to include new variables and tools for measuring factors, such as past month perceived stress, or past month depression, or past month anxiety, or degree of exposure to trauma and symptoms of trauma—as all of these might impact level of motivation to take an active role in the campaign. And, if the training is scaled up, globally, there are going to be countries where there has been war, or severe economic disruption, or a refugee crisis, or traumatic violence, or traumatic separation from family; and, those who were once competent health care workers may now be compromised by stress, depression, anxiety or trauma—as factors potentially impacting

their motivation for taking an active role in any proposed counter-marketing training and campaign in some countries.

Limitations

There were several study limitations that need to be considered when interpreting the study results. First, the study sample was one of convenience, and subjects were recruited through local sponsors/institutions who reached out to their members and network—limiting the generalizability of the study findings beyond this current sample. Further, this study used self-reported data that were not validated by others, which introduced the risk of participants providing socially desirable responses. No measure of social desirability was used in the study. Thus, social desirability bias may have contributed to participants over-reporting campaign

Conclusion

The problem that this study addressed is the unethical and aggressive marketing of multinational corporations' commercial formula for infants and young children in Indonesia. This study evaluated a continuing education training module designed to empower breastfeeding educators/counselors to participate in and promote a counter-marketing campaign, specifically by exposing them to counter-marketing and brief motivational interviewing that are codified in an original training module.

Toward adding to the literature on addressing the aggressive marketing of commercial formula, this study was one of the projects of the Research Group on Disparities in Health (RGDH) at Teachers College, Columbia University, while drawing upon (and modifying for appropriateness) several instruments that have been used in prior brief intervention studies of the RGDH that demonstrated adequate to excellent internal consistency (i.e., Burnham, 2017; Garcia, 2013; Gokool-Sheikh, 2015). Furthermore, following the standard RGDH protocol, the investigator conducted an evaluation of a continuing education module and recruited a convenience sample, in this case through local partners in Indonesia.

Using a convenience sample (N= 99) of breastfeeding educators and/or counselors, participants rated the training as very good (74.7%, n = 74). Also, paired t-tests showed a significant increase in participants' knowledge about counter-marketing after they participated in the training. Findings also showed significant increases post-training for stage of changes, self-efficacy, knowledge, and motivation to perform four key talking behaviors: i.e., involving talking to new and pregnant mothers about corporations' inappropriate and aggressive marketing of formula, and the risks of becoming dependent on expensive formula and losing the ability to produce their own breast milk. These findings suggested that exposure to the counter-marketing continuing education training served as a brief intervention associated with significant improvements in level of knowledge about counter-marketing among participants and in stage of change self-efficacy, knowledge, and motivation for performing key behaviors of interest.

Backward-stepwise regression revealed that *higher level of motivation for taking an active role in the proposed campaign* (i.e., *A Campaign to Expose the Truth about*

Becoming Dependent on Commercial Formula and Breastfeeding Cessation) was significantly predicted by: (1) *higher pre-training self-efficacy for talking to expectant and new mothers about the reasons to breastfeed their infant* ($\beta = .327$, $SEB = .118$, $p = .007$); (2) *lower pre-training knowledge for talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula* ($\beta = -.270$, $SEB = .092$, $p = .004$); and, (3) *higher level of knowledge for taking an active role in the proposed campaign* ($\beta = .392$, $SEB = .083$, $p = .000$). For this regression model, $R^2 = 0.246$, and the adjusted R-square value for this model was 0.222, meaning that 22.2% of the variance was explained by this model.

Qualitative data showed that the training provided new knowledge and a new approach in addressing aggressive formula marketing by corporations. Further, participants found that the training has made them more confident and motivated to work with mothers and community to advocate and educate about negative impacts from commercial formula.

The study demonstrated how a counter-marketing continuing education training module that integrates brief motivational interviewing was carefully designed for breastfeeding educators and counselors in Indonesia—while emerging as an evidence-based approach. As such, the training module may potentially be scaled up nationally in Indonesia, as well as globally in other countries. In this manner, this study provides hope in addressing the inappropriate and aggressive marketing by multinational corporations of their commercial formula in Indonesia, as well as globally. Following prior studies, the use of a video-taped training may permit global reach online (i.e., Burnham, 2017; Garcia, 2013; Gokool-Sheikh, 2015).

Lastly, the hope is that future proposals for research that are an outgrowth of this study will attract grant funding, in order to support ongoing research and evaluation work toward the goal of protecting breastfeeding nationally in Indonesia, as well as globally.

REFERENCES

- Abrams, S. A. (2015). Is it time to put a moratorium on new infant formulas that are not adequately investigated? *The Journal of Pediatrics*, 166(3), 756-760.
- Allen, J. A., Vallone, D., Vargyas, E., & Heaton, C. G. (2009). The truth campaign: Using counter marketing to reduce youth smoking. *The New World of Health Promotion, New Program Development, Implementation and Evaluation*, 195-215.
- Allers, K. S. (2017). *The big let down: How medicine, big business, and feminism undermine breastfeeding*. New York: St. Martin's Press.
- Alvarez-Uria, G., Midde, M., Pakam, R., Bachu, L., & Naik, P. K. (2012). Effect of formula feeding and breastfeeding on child growth, infant mortality, and HIV transmission in children born to HIV-infected pregnant women who received triple antiretroviral therapy in a resource-limited setting: data from an HIV cohort study in India. *International Scholarly Research Network Pediatrics*. 2012 (763591). doi:10.5402/2012/763591
- American Academy of Pediatrics & Section on Breastfeeding (2012). Breastfeeding and the use of human milk. *Pediatrics*, 129, e827–e841.
- Appleton, J., Laws, R., Russell, C. G., Fowler, C., Campbell, K. J., & Denney-Wilson, E. (2018). Infant formula feeding practices and the role of advice and support: An exploratory qualitative study. *BMC Pediatrics*, 18(1), 12.
- Baker, P., Smith, J., Salmon, L., Friel, S., Kent, G., Iellamo, A., ... & Renfrew, M. J. (2016). Global trends and patterns of commercial milk-based formula sales: Is an unprecedented infant and young child feeding transition underway? *Public Health Nutrition*, 19(14), 2540-2550.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1998). Health promotion from the perspective of social cognitive theory. *Psychology and Health*, 13(4), 623-649.
- Bai, Y. K., Middlestadt, S. E., Joanne Peng, C. Y., & Fly, A. D. (2009). Psychosocial factors underlying the mother's decision to continue exclusive breastfeeding for 6 months: an elicitation study. *Journal of Human Nutrition and Dietetics*, 22(2), 134-140.
- Basch, C. H., Shaffer, E. J., Hammond, R., & Rajan, S. (2013). Prevalence of infant formula advertisements in parenting magazines over a 5-year span. *Journal of Pediatric Nursing*, 28(6), e28-e32.

- Basrowi, R. W., Sastroasmoro, S., Sulistomo, A. W., Bardosono, S., Hendarto, A., Soemarko, D. S., ... & Vandenplas, Y. (2018). Developing a workplace lactation promotion model in Indonesia using Delphi technique. *Archives of Public Health*, 76(1), 70.
- Belamarich, P. F., Bochner, R. E., & Racine, A. D. (2016). A critical review of the marketing claims of infant formula products in the United States. *Clinical Pediatrics*, 55(5), 437-442.
- Benhardt, J. M. (2004). Communication at the core of effective public health. *American Journal of Public Health*, 94(12), 2051-2053.
- Berry, N. J., & Gribble, K. D. (2017). Health and nutrition content claims on websites advertising infant formula available in Australia: A content analysis. *Maternal & Child Nutrition*, 13(4), e12383.
- Berry, N. J., Jones, S. C., & Iverson, D. (2010). It's all formula to me: Women's understandings of toddler milk ads. *Breastfeeding Review*, 18(1), 21-30.
- Berry, N. J., Jones, S. C., & Iverson, D. (2011). Relax, you're soaking in it: Sources of information about infant formula. *Breastfeeding Review*, 19(1), 9.
- Berry, N. J., Jones, S. C., Iverson, D. (2012). Toddler milk advertising in Australia: Infant formula advertising in disguise? *Australasian Marketing Journal*, 20(1), 24-27.
- Boddy, C. (2014). Counter-marketing case studies. In Bradley, N., & Blythe, J. (Eds). *Demarketing*, (pp. 81-97). New York: Routledge.
- Brockway, M., Benzies, K., & Hayden, K. A. (2017). Interventions to improve breastfeeding self-efficacy and resultant breastfeeding rates: A systematic review and meta-analysis. *Journal of Human Lactation*, 33(3), 486-499.
- Burnham, B. M. (2017). *Addressing the Epidemic of Anal Human Papillomavirus (HPV) Infection via an E-Health Video Designed to Empower Young Men Who Have Sex With Men (YMSM) to Increase HPV Screening and Vaccination, Screening for HIV and Other Sexually Transmitted Infections, and Adoption of Risk Reduction Behaviors* (Doctoral dissertation, Teachers College, Columbia University).
- Cattaneo, A., Pani, P., Carletti, C., Guidetti, M., Mutti, V., Guidetti, C., ... & Conti, S. (2014). Advertisements of follow-on formula and their perception by pregnant women and mothers in Italy. *Archives of Disease in Childhood*, 0(1), 1-6. doi:10.1136/archdischild-2014-306996
- Chen, Y. C., Chang, J. S., & Gong, Y. T. (2015). A content analysis of infant and toddler food advertisements in Taiwanese popular pregnancy and early parenting magazines. *Journal of Human Lactation*, 31(3), 458-466.

- Ching, I. (2017). Overview: Breaking the rules, stretching the rules 2017. *World Nutrition*, 8(2), 323-330.
- Colchero, M. A., Contreras-Loya, D., Lopez-Gatell, H., & de Cosío, T. G. (2015). The costs of inadequate breastfeeding of infants in Mexico. *The American Journal of Clinical Nutrition*, 101(3), 579-586.
- Farrelly, M. C., Healton, C. G., Davis, K. C., Messeri, P., Hersey, J. C., & Haviland, M. L. (2002). Getting to the truth: Evaluating national tobacco countermarketing campaigns. *American Journal of Public Health*, 92(6), 901-907.
- Farrelly, M. C., Nonnemaker, J., Davis, K. C., & Hussin, A. (2009). The influence of the national truth® campaign on smoking initiation. *American Journal of Preventive Medicine*, 36(5), 379-384.
- Flaherman, V. J., Chan, S., Desai, R., Agung, F. H., Hartati, H., & Yelda, F. (2018). Barriers to exclusive breast-feeding in Indonesian hospitals: A qualitative study of early infant feeding practices. *Public Health Nutrition*, 21(14), 2689–2697.
- Fox, K. F., & Kotler, P. (1980). The marketing of social causes: The first 10 years. *The Journal of Marketing*, 24-33.
- Garcia, D. E. (2013). *Diffusing the innovation of e-health featuring avatar videos designed to empower men who have sex with men to increase HIV testing, screening for sexually transmitted infections, and risk reduction behaviors* (Doctoral dissertation, Teachers College, Columbia University).
- Gavine, A., MacGillivray, S., Renfrew, M. J., Siebelt, L., Haggi, H., & McFadden, A. (2016). Education and training of healthcare staff in the knowledge, attitudes and skills needed to work effectively with breastfeeding women: A systematic review. *International Breastfeeding Journal*, 12(1), 6.
- Government of the Republic of Indonesia (2012). *Regulation Number 33 on Exclusive Breastfeeding*. Jakarta: Government of the Republic of Indonesia.
- Hidayana, I., Februhartanty, J., & Parady, V. A. (2017). Violations of the international code of marketing of breast-milk substitutes: Indonesia context. *Public Health Nutrition*, 20(1), 165-173.
- Hoffman, S. J., & Tan, C. (2015). Overview of systematic reviews on the health-related effects of government tobacco control policies. *BioMed Central Public Health*, 15(1), 744.
- Hughes, H. K., Landa, M. M., & Sharfstein, J. M. (2017). Marketing claims for infant formula: The need for evidence. *JAMA Pediatrics*, 171(2), 105-106.
- Ingram, J. (2006). Multiprofessional training for breastfeeding management in primary care in the UK. *International Breastfeeding Journal*, 1(1), 9.

- International Code Documentation Centre [ICDC] (2008). *Annotated international code of marketing of breastmilk substitutes and subsequent WHA resolutions*. Penang: ICDC.
- Khan, J., Vesel, L., Bahl, R., & Martines, J. C. (2015). Timing of breastfeeding initiation and exclusivity of breastfeeding during the first month of life: effects on neonatal mortality and morbidity—a systematic review and meta-analysis. *Maternal and child health journal*, 19(3), 468-479.
- Kotler, P. (1973). The major tasks of marketing management. *Journal of Marketing Management*, 37, 42-49.
- Maibach, E. W., & Parrott, R. (1995). *Designing health messages: Approaches from communication theory and public health practice*. London: Sage.
- Miller, W.R., & Rollnick, S. (2013) *Motivational Interviewing: Helping People Change*, 3rd Edition, New York: Guilford Press.
- Ministry of Health of the Republic of Indonesia [MOHRI] (2013). *Regulation Number 39 on Infant Formula Milk and other Baby Products*. Jakarta: Ministry of Health of the Republic of Indonesia.
- Murphy-Hoefer, R., Hyland, A., & Higbee, C. (2008). Perceived effectiveness of tobacco countermarketing advertisements among young adults. *American Journal of Health Behavior*, 32(6), 725-734.
- Niederdeppe, J., Farrelly, M. C., & Haviland, M. L. (2004). Confirming “truth”: More evidence of a successful tobacco countermarketing campaign in Florida. *American Journal of Public Health*, 94(2), 255-257.
- Palmedo, P. C., Dorfman, L., Garza, S., Murphy, E., & Freudenberg, N. (2017). Countermarketing alcohol and unhealthy food: An effective strategy for preventing noncommunicable diseases? Lessons from tobacco. *Annual Review of Public Health*, 38, 119 – 144.
- Patel, S., & Patel, S. (2016). The effectiveness of lactation consultants and lactation counselors on breastfeeding outcomes. *Journal of Human Lactation*, 32(3), 530-541.
- Pereira, C., Ford, R., Feeley, A. B., Sweet, L., Badham, J., & Zehner, E. (2016). Cross-sectional survey shows that follow-up formula and growing-up milks are labelled similarly to infant formula in four low and middle-income countries. *Maternal & Child Nutrition*, 12(S2), 91-105.
- Phouthakeo, P., Otsuka, K., Ito, C., Sayamoungkhoun, P., Kounnavong, S., & Jimba, M. (2014). Cross-border promotion of formula milk in Lao People's Democratic Republic. *Journal of Paediatrics and Child Health*, 50(1), 51-56.
- Piwoz, E. G., & Huffman, S. L. (2015). The impact of marketing of breast-milk

- substitutes on WHO-recommended breastfeeding practices. *Food and Nutrition Bulletin*, 36(4), 373-386.
- Pries, A. M., Huffman, S. L., Mengkheang, K., Kroeun, H., Champeny, M., Roberts, M., & Zehner, E. (2016). Pervasive promotion of breastmilk substitutes in Phnom Penh, Cambodia, and high usage by mothers for infant and young child feeding. *Maternal & Child Nutrition*, 12, 38-51.
- Prochaska, J. O., & DiClemente, C. C. (1983). Stages and process of self-change of smoking: Toward an integrative model of change. *Journal of Consulting and Clinical Psychology*, 51, 3, 390-385).
- Prochaska, J. O., & DiClemente, C. C. (1994). *The transtheoretical approach: Crossing traditional boundaries of therapy*. Homewood: Doe Jones-Irwin.
- Prochaska, J. O., & Velicer, W. F. (1997). The transtheoretical model of health behavior change. *American Journal of Health Promotion*, 12(1), 38-48.
- Rollins, N. C., Bhandari, N., Hajeebhoy, N., Horton, S., Lutter, C. K., Martines, J. C., ... & Group, T. L. B. S. (2016). Why invest, and what it will take to improve breastfeeding practices? *The Lancet*, 387(10017), 491-50.
- Schiavo, R. (2013). *Health communication: From theory to practice*. San Fransisco: John Wiley & Sons.
- Shealy, K. R., Li, R., Benton-Davis, S., & Grummer-Strawn, L. M. (2005). *The CDC guide to breastfeeding interventions*. Atlanta: Centers for Diseases Control and Prevention. Retrieved from: http://www.cdc.gov/breastfeeding/pdf/breastfeeding_interventions.pdf.
- Shubber, S. (1988). *The international code of marketing of breast-milk substitutes: An international measure to protect and promote breast-feeding*. The Hague/London/Boston: Kluwer Law International.
- Siregar, A. Y., Pitriyan, P., & Walters, D. (2018). The annual cost of not breastfeeding in Indonesia: The economic burden of treating diarrhea and respiratory disease among children (< 24mo) due to not breastfeeding according to recommendation. *International Breastfeeding Journal*, 13(1), 10.
- Smith, J., & Blake, M. (2013). Infant food marketing strategies undermine effective regulation of breast-milk substitutes: Trends in print advertising in Australia, 1950–2010. *Australian and New Zealand Journal of Public Health*, 37(4), 337–344.
- Sobel, H.L., Iellamo, A., Raya, R.R., Padilla, A.A., Olivé, J-M., & U, S.N. (2011). Is unimpeded marketing for breast milk substitutes responsible for the decline in breastfeeding in the Philippines? An exploratory survey and focus group analysis. *Social Science & Medicine*, 73, 1445-1448.

- Statistics Indonesia (Badan Pusat Statistik—BPS), National Population and Family Planning Board (BKKBN), Kementerian Kesehatan (Kemenkes—MOH), and ICF International. (2013). *Indonesia Demographic and Health Survey 2012*. Jakarta: BPS, BKKBN, Kemenkes, and ICF International.
- Tambunan, F. F., Purwanegara, M. S., & Indriani, M. T. D. (2013). Mothers perception, attitude, and willingness to purchase towards baby formula. *Journal of Economics and Behavioral Studies*, 5(8), 511.
- Theurich, M. A. (2018). World Health Assembly Resolution 69.9 calls for an end to unethical marketing of “baby foods”. *Journal of Human Lactation*, 34(2), 272-275.
- U.S. Department of Health and Human Services (USDHHS, 2002). *Making health communication programs work*. Public Health Service, National Institutes of Health, & National Cancer Institute. (NIH Publication No. 02-5145). Retrieved from <http://www.cancer.gov/cancertopics/cancerlibrary/pinkbook>.
- Victora, C. G., Bahl, R., Barros, A. J., França, G. V., Horton, S., Krasevec, J., ... & Group, T. L. B. S. (2016). Breastfeeding in the 21st century: Epidemiology, mechanisms, and lifelong effect. *The Lancet*, 387(10017), 475-490.
- Vinje, K. H., Phan, L. T. H., Nguyen, T. T., Henjum, S., Ribe, L. O., & Mathisen, R. (2017). Media audit reveals inappropriate promotion of products under the scope of the International Code of Marketing of Breast-milk Substitutes in South-East Asia. *Public Health Nutrition*, 20(8), 1333-1342.
- Wallace, B.C. (2005). *HIV/AIDS peer education training manual: Combining African healing wisdom and evidence-based behavior change strategies*. Philadelphia, PA: StarSpirit Press. Retrieved from <https://sites.google.com/a/globalhelp.columbia.edu/globalhelp/toolkit/toolkit-table-of-contents>.
- Wallace, B.C. (2014). *Personal capacity building exercises and community capacity building exercises*. Retrieved from http://divahealth.org/capacity_building.html.
- Wallace, B.C. (2019, in press). *Making mandated addiction treatment work*, MD: Rowman & Littlefield.
- Walters, D., Horton, S., Siregar, A. Y. M., Pitriyan, P., Hajeerbhoy, N., Mathisen, R., ... & Rudert, C. (2016). The cost of not breastfeeding in Southeast Asia. *Health Policy and Planning*, 31(8), 1107-1116.
- Wehbe, M. S., Basil, M., & Basil, D. (2017). Reactance and coping responses to tobacco counter-advertisements. *Journal of Health Communication*, 22(7), 576-583.

- Wennberg, A. L., Jonsson, S., Janke, J. Z., & Hörnsten, Å. (2017). Online perceptions of mothers about breastfeeding and introducing formula: Qualitative study. *JMIR Public Health and Surveillance*, 3(4).
- World Health Organization (WHO). (1981). *International code of marketing of breast milk substitutes*. Geneva: World Health Organization.
- World Health Organization (WHO). (2003). *Global strategy for infant and young child feeding*. Geneva: World Health Organization.
- World Health Organization (WHO). (2011). *Global status report on noncommunicable diseases 2010*. Geneva: World Health Organization.
- World Health Organization (WHO). (2016). World Health Assembly (WHA) Resolution 69.9 *Ending inappropriate promotion of foods for infants and young children*. Retrieved from http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_R9-en.pdf
- World Health Organization (WHO). (2017). *Guidance on ending the inappropriate promotion of foods for infants and young children: Implementation manual*. Geneva: World Health Organization.
- World Health Organization (WHO), UNICEF & International Baby Food Action Network. (2016). *Marketing of breast-milk substitutes: National implementation of the international code: Status report 2016*. Geneva: World Health Organization.

Appendix A

IRB Approval Letter

*Teachers College IRB**Exempt Study Approval*

To: Irma Hidayana
From: Myra Luna Lucero, Research Compliance Manager
Subject: IRB Approval: 19-129 Protocol
Date: 12/31/2018

Thank you for submitting your study entitled, "*Addressing Multinational Corporations' Aggressive Marketing of Commercial Formula in Indonesia and the Cessation of Breastfeeding through the Design and Evaluation of a Counter-marketing Continuing Education Module*," the IRB has determined that your study is **Exempt** from committee review (Category 2) on 12/31/2018.

Please keep in mind that the IRB Committee must be contacted if there are any changes to your research protocol. The number assigned to your protocol is **19-129**. Feel free to contact the IRB Office by using the "Messages" option in the electronic Mentor IRB system if you have any questions about this protocol.

Please note that your Consent form bears an official IRB authorization stamp and is attached to this email. Copies of this form with the IRB stamp must be used for your research work. Further, all research recruitment materials must include the study's IRB-approved protocol number. You can retrieve a PDF copy of this approval letter from the Mentor site.

Best wishes for your research work.

Sincerely,
Dr. Myra Luna Lucero
Research Compliance Manager
irb@tc.edu

Attachments:

- 1-Consent Form (English)_FINAL .pdf
- 8-Consent Form (Translated)_FINAL.pdf

Appendix B

Recruiting Flyer Message

*****VOLUNTEER FOR A RESEARCH STUDY*****

PARTICIPATE IN A NEW 7 HOUR TRAINING THAT MAY EXPAND YOUR WORK WITH PREGNANT & NEW MOTHERS! HELP US EVALUTE THE NEW TRAINING!



Are you a breastfeeding educator or breastfeeding counselor?

Do you want to attend a new training to learn new skills for working with mothers—and help the researcher evaluate the new training?

Do you want to learn more about *A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation?*

Please volunteer for this research study & attend the new 7 hour continuing education training.

SIGN UP FOR ONE OF TWO LOCATIONS:

Jakarta:
January 8, 2019
PUSAD, Bona Indah Plaza
A2-B11,
Jakarta Selatan

Yogyakarta:
January 10, 2019
Jl. Colombo No.1, Karang
Malang, Caturtunggal,
Yogyakarta

To sign up please contact
countermarketingsufor@gmail.com,
or WhatsApps text: 0877-8641-7271

NOTE: It is possible to participate in the training and not the study; this means you would refuse to complete the pre-training and post-training surveys.

About the Researcher And Training Leader
Irma Hidayana, MPH
is a public health professional and breastfeeding advocate. She is completing her doctorate in health education at Teachers College, Columbia University, New York, New York, USA



The Research Study & Training Sponsors
Gerakan Kesehatan Ibu dan Anak Indonesia, Asosiasi Ibu Menyusui Indonesia, and Center for Health Equity and Urban Science Education, Teachers College, Columbia University, New York, New York, USA

Teachers College, Columbia University IRB Protocol # 19-129

Appendix C

Recruitment E-mail Message

Teachers College, Columbia University
IRB PROTOCOL # 19-129

*****VOLUNTEER FOR A RESEARCH STUDY*****
PARTICIPATE IN A NEW 7 HOUR TRAINING THAT MAY EXPAND YOUR
WORK WITH PREGNANT & NEW MOTHERS! HELP US EVALUTE THE
NEW TRAINING!

- **Are you a breastfeeding educator or breastfeeding counselor?**
 - **Do you want to a new training to learn new skills for working with mothers—and help the researcher evaluate the new training?**
 - **Do you want to learn more about *A Campaign to Expose the Truth about Becoming Dependent on Commercial Formula and Breastfeeding Cessation*?**
- Hi, my name is Irma Hidayana. As a health professional (MPH) and pre-doctoral fellow with the Research Group on Disparities in Health within the Center for Health Equity and Urban Science Education, Department of Health and Behavior Studies, Teachers College, Columbia University in New York City, USA, I am conducting this study with my sponsor (Barbara C. Wallace, PhD).
 - This study is being done to evaluate a new training for breastfeeding educators/counselors on the use of formula. The evaluation will determine if, after the training, the breastfeeding educators/counselors rate themselves as having the knowledge and confidence to: 1- talk to pregnant and new mothers about corporations' inappropriate and aggressive marketing of formula, and the risk of becoming dependent on expensive formula and losing the ability to produce their own breastmilk: and, 2- participate in a counter-marketing campaign in Indonesia called "*A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation.*"
 - Participation in this study and free training is limited to the first 35 breastfeeding educators/counselors who sign up for the January 8, 2019 training in Jakarta, or the first 35 who sign up for the January 10, 2019 in Yogyakarta. To sign up please send an email to: countermarketingsufor@gmail.com or text via WhatssApp to +62877-8641-7271.
 - NOTE: It is possible to participate in the training and not the study; this means you would refuse to complete the pre-training and post-training surveys.

- Please forward this email with the flyer attached to other breastfeeding educators/counselors. THANK YOU!

Appendix D

Informed Consent

Teachers College, Columbia University
525 West 120th Street
New York NY 10027
212 678 3000

INFORMED CONSENT**IRB Protocol Number 19-129**

Protocol Title: Addressing Multinational Corporations' Aggressive Marketing of Commercial Formula in Indonesia and the Cessation of Breastfeeding through the Design and Evaluation of a Counter-marketing Continuing Education Module

Principal Investigator: Irma Hidayana, MPH, Teachers College, 917-941-9383, ih2296@tc.columbia.edu

INTRODUCTION You are being invited to participate in this research study called "Addressing Multinational Corporations' Aggressive Marketing of Commercial Formula in Indonesia and the Cessation of Breastfeeding through the Design and Evaluation of A Counter-marketing Continuing Education Module." You may qualify to take part in this research study if you: are able to speak and read Indonesian on a secondary school level; are age 18 or above; are a breastfeeding educator or counselor; and, are willing to participate in a one day continuing education training. Approximately 70 people will participate in this and it will take 7 hours of your time to complete.

WHY IS THIS STUDY BEING DONE? This study is being done to evaluate a new training for breastfeeding educators/ counselors on the use of formula. The evaluation will determine if, after the training, the breastfeeding educators/counselors rate themselves as having the knowledge and confidence to: 1- talk to pregnant and new mothers about corporations' inappropriate and aggressive marketing of formula, and the risk of becoming dependent on expensive formula and losing the ability to produce their own breastmilk; and, 2-participate in a counter-marketing campaign in Indonesia called "*A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation.*"

WHAT WILL I BE ASKED TO DO IF I AGREE TO TAKE PART IN THIS STUDY? If you decide to participate in either the research study/training in the city of Jakarta or Yogyakarta, Indonesia, the primary researcher will lead a 7-hour continuing education training. For the research study/training, you will be asked to:

- **BEFORE THE TRAINING:** you will create your own personal code so your identity remains anonymous and complete a **BEFORE-TRAINING QUESTIONNAIRE**—that will take about 10 minutes to complete (NOTE: The personal code will allow the researcher to match your before- and after-training questionnaires in order to evaluate the training). You will be asked to answer questions about your background (age, education, income, etc.), and about your knowledge, confidence, and motivation to talk to pregnant and new mothers about several topics related to breastfeeding, infant health, and corporate marketing of formula.
- **DURING THE TRAINING:**
 - you will learn about the following topics during about 6 hours of continuing education training:
 - 1- the reasons to breastfeed infants (i.e. exclusive and optimal breastfeeding), and all the benefits for infants
 - 2- corporations' inappropriate and aggressive marketing of commercial formula and other breast milk substitutes, including many examples
 - 3- the risk of women becoming dependent on expensive formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant
 - 4-about countermarketing, the uses of countermarketing, and the counter-marketing campaign they will have the choice of participating in within Indonesia called "*A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation.*"
- **AFTER THE TRAINING:** you will enter the same personal code so your identity remains anonymous and complete an **AFTER-TRAINING QUESTIONNAIRE**—that will take about 10 minutes to complete. You will be asked to answer questions about your knowledge, confidence, and motivation to talk to pregnant and new mothers about several topics related to breastfeeding, infant health, and corporate marketing of formula; and, to participate in a countermarketing campaign in Indonesia.

WHAT POSSIBLE RISKS OR DISCOMFORTS CAN I EXPECT FROM TAKING PART IN THIS STUDY?

This is a minimal risk study, which means the harms or discomforts that you may experience are not greater than you would ordinarily encounter if you were taking a class, or attending a training. However, there are some risks to consider. For example, a participant might find the research questions to be emotionally upsetting, or may find the time it takes to answer questions to be a burden, or may find some of the training topics to be emotionally upsetting. These risks have been minimized by only including questions considered important to meet the study goals; and, by designing the training so participants do not experience any emotional discomfort. However, it is possible that a participant may experience some emotional discomfort by questions or training topics on formula feeding, breastfeeding, or infant health. A

participant who experiences any emotional discomfort can discontinue answering questions or can leave the training at any time. A participant can walk out of the training and not return—without suffering any negative consequences.

The principal investigator is taking precautions to keep your information confidential and prevent anyone from discovering or guessing your identity. This is why you will create a personal code so we can match your before- and after-training questionnaires. The researcher will also take several other precautions, such as transferring the information on the questionnaires into a secure online database (e.g. called Qualtrics); and, shredding and destroying the actual questionnaires before leaving Indonesia. Only the last page of your Informed Consent with your signature will be transported to the USA in a locked briefcase that requires a code to open. Once in the USA, the Informed Consent forms with your signature will be kept in a locked file drawer. Three years after the study's conclusion, these Informed Consent forms will also be shredded and destroyed.

WHAT POSSIBLE BENEFITS CAN I EXPECT FROM TAKING PART IN THIS STUDY? There is no direct benefit to you for participating in this study. Participation may benefit the field of continuing education for breastfeeding educators/counselors, if the training is found to be of value.

WILL I BE PAID FOR BEING IN THIS STUDY? You will not be paid to participate. However, refreshments during session breaks, and your lunch will be provided during the training

WHEN IS THE STUDY OVER? CAN I LEAVE THE STUDY BEFORE IT ENDS? The study is over when you have completed the seven-hour one day training, including filling out the after-training questionnaire. However, you can leave the study and depart from the training session at any time. You also have the option of only participating in the training and refusing to participate in the study; that means you refuse to complete the pre-training and post-training surveys.

PROTECTION OF YOUR CONFIDENTIALITY The investigator will keep all written materials completely confidential. Your questionnaires will not contain your name or any other information that could identify you. Thus, there is no way to connect your personal code with your name or identity. The researcher will transport your questionnaires from the training to a locked office room, using a briefcase that requires a code to open. The briefcase will be kept in a locked room in Indonesia. While in Indonesia, the information on the questionnaires will be entered into an online databased (e.g. called Qualtrics). Once the information on your questionnaires has been entered into the database, your questionnaires will be shredded and destroyed while the researcher is in Indonesia. The last page of your Informed Consent with your signature will be transported to the USA in the locked briefcase that requires a code to open. (You will keep the other pages of the Informed Consent). Once in the USA, the Informed Consent forms with your signature will be kept in a locked file drawer. Three years after the study's conclusion, these Informed Consent forms will also be shredded and destroyed.

For quality assurance, the study team, and/or members of the Teachers College Institutional Review Board (IRB) may review the data collected from you as part of this study. Otherwise, all information obtained from your participation in this study will be held strictly confidential and will be disclosed only with your permission or as required by U.S. or State law.

HOW WILL THE RESULTS BE USED? The results of this study will be published in journals and presented at academic conferences. This study is being conducted as part of the dissertation of the principal investigator.

WHO CAN ANSWER MY QUESTIONS ABOUT THIS STUDY?

If you have any questions about taking part in this research study, you should contact the principal investigator, Irma Hidayana, MPH, Teachers College, at ih2296@tc.columbia.edu or +1-917-941-9383. You can also contact the faculty advisor, Dr. Barbara C. Wallace at [+1\(267\)-269-7411](tel:+12672697411) or bcw3@tc.columbia.edu.

If you have questions or concerns about your rights as a research subject, you should contact the Institutional Review Board (IRB) (the human research ethics committee) at 212-678-4105 or email IRB@tc.edu. Or you can write to the IRB at Teachers College, Columbia University, 525 W. 120th Street, New York, NY 1002. The IRB is the committee that oversees human research protection for Teachers College, Columbia University.

PARTICIPANT'S RIGHTS

- I have read and discussed the informed consent with the researcher.
- I have had ample opportunity to ask questions about the purposes, procedures, risks and benefits regarding this research study.
- I understand that my participation is voluntary. I may refuse to participate or withdraw participation at any time without penalty.
- The researcher may withdraw me from the research at their professional discretion.
- If, during the course of the study, significant new information that has been developed becomes available which may relate to my willingness to continue my participation, the investigator will provide this information to me.
- Any information derived from the research study that personally identifies me will not be voluntarily released or disclosed without my separate consent, except as specifically required by law.
- De-identifiable data may be used for future research studies, or distributed to another investigator for future research without additional informed consent from the subject or the representative.
- I should receive a copy of the Informed Consent document.

My signature on the NEXT PAGE (which the researcher will collect) means that I agree to participate in this study

My signature means that I agree to participate in this study

Print Name: _____

Date: _____

Signature:

Appendix E

Screening Survey

**Teachers College, Columbia University
IRB PROTOCOL # 19-129****SCREENING FOR STUDY PARTICIPATION**

Please answer the following questions to see if you qualify for study participation:

1-Are you able to speak and read Indonesian on a secondary school level?

☐ Yes ☐ No

2-Were you trained as a breastfeeding educator or counselor?

☐ Yes ☐ No

3-Are you willing to participate in a 7-hour training continuing education training (including breaks with refreshments, and time for your lunch—which will be provided)?

☐ Yes ☐ No

4-As part of this 7-hour training, are you willing to: 1-fill out a questionnaire BEFORE the training for about 10 minutes; 2-be present DURING the approximately 6-hour training, including returning promptly from breaks; and, 3-fill out a questionnaire AFTER the training for about 10 minutes?

☐ Yes ☐ No

If you answered “NO” to the above questions # 1, # 2 and # 3, then this training is not for you. You may leave the training. Thank you for your time.

If you answered “NO” to QUESTION # 4, then you may remain and participate in the training—without participating in the research study; you do not have to complete the BEFORE training and AFTER training surveys.

.

Appendix F

Study Survey -A

STUDY SURVEY - A
Teachers College, Columbia University
IRB PROTOCOL # 19-129

A-BEFORE THE TRAINING
THE COUNTER-MARKETING COUNTINUING EDUCATION
PRE-TRAINING SURVEY

PART I-A: ENTER YOUR PERSONAL CODE—BEFORE-TRAINING (EYPC-BT-4)

For purposes of linking your pre-training and post-training survey responses, please answer the following confidential questions in a manner that you WILL REMEMBER each and every time.

- 1) The last two digits of my phone number:____(e.g. 27)
- 2) The last two digits of my spouse/best friend's phone number ____ (e.g. 79)
- 3) The last two digits of the year I graduated from Elementary School (SD)____(e.g. 89)
- 4) The last two digits of the year I graduated from High School (SMA) __ (e.g. 00)

[For example, your personal code would be **27-79-89-00**—and if you answer these four questions in the exact same manner each time, then we will be able to match your pre-training and post-training surveys]

PART II-A: BASIC DEMOGRAPHICS (BD-7)

1- I am:

- ☐ Female
- ☐ Male
- ☐ Other

2- My age is: _____

3- I am currently:

- ☐ A single Mother
- ☐ A single Father
- ☐ Married
- ☐ Separated
- ☐ Divorced
- ☐ Widowed
- ☐ Other (Please explain_____)

4- I am currently (check all that apply)

- ☐ ____employed
- ☐ ____unemployed
- ☐ ____a homemaker
- ☐ ____retired
- ☐ ____a health cadre
- ☐ ____a professional health worker (a midwife, an MD, a nurse)
- ☐ ____a breastfeeding educator
- ☐ ____a breastfeeding counselor
- ☐ ____a community health educator
- ☐ ____a certified lactation counselor
- ☐ ____Other (please explain_____)

5- My monthly household income is:

- ☐ Less than or IDR 5,900.000
- ☐ IDR 6,000.000 to IDR 10,500.000
- ☐ IDR 11,000.000 to IDR 15,500.000
- ☐ IDR 16,000.000 to IDR 20,500.000
- ☐ IDR 21,000.000 to IDR 25,500.000
- ☐ IDR 26,000.000 to IDR 30,500.000
- ☐ IDR 31,000.000 or more

6- My highest education level is:

- ☐ High school graduate or high school equivalent
- ☐ Some college
- ☐ 3 year college degree (Associate's)
- ☐ 4 year college degree (Bachelor's)
- ☐ Master's degree
- ☐ J.D. - Lawyer
- ☐ Doctoral Degree (Ph.D., Ed.D, etc.)
- ☐ Medical Degree (M.D., D.D.S., etc.)

7- I am currently living in

- ☐ Capital city/Urban area
- ☐ Provincial area
- ☐ District area

PART III-A: BEFORE THE TRAINING: RATING OF MY KNOWLEDGE (BT-RMK-1)

I rate my level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns as:

Very Poor	Poor	Fair	Good	Very	Excellent
-----------	------	------	------	------	-----------

				Good	
1	2	3	4	5	6

PART IV-A: BEFORE THE TRAINING: STAGE OF CHANGE, SELF-EFFICACY, KNOWLEDGE AND MOTIVATION LEVELS (BT-SOC-SE-K-M-L4)

Read about each behavior, and then check what applies to you from the options below.

1-For the behavior of *talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant*

a-

- ☐ I am not thinking of doing this behavior at all.
☐ I am thinking about doing this behavior.
☐ I am preparing to do this behavior.
☐ I have been doing this behavior for **less than six (6) months**.
☐ I have been doing this behavior for **more than six (6) months**

b-My confidence level for performing this behavior:

- ☐ 0% confident ☐ 20% confident ☐ 40% confident
☐ 60% confident ☐ 80% confident ☐ 100% confident

c-My level of knowledge and understanding for doing this is

- ☐ (0) non-existent (none at all) ☐ (1) extremely low ☐ (2) very low ☐ (3) low ☐ (4) moderate ☐ (5) high ☐ (6) very high ☐ (7) extremely high

d-My level of motivation for actually doing this is

- ☐ (0) non-existent (none at all) ☐ (1) extremely low ☐ (2) very low ☐ (3) low ☐ (4) moderate ☐ (5) high ☐ (6) very high ☐ (7) extremely high

2-For the behavior of *talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and other breast milk substitutes*

a-

- ☐ I am not thinking of doing this behavior at all.
☐ I am thinking about doing this behavior.
☐ I am preparing to do this behavior.
☐ I have been doing this behavior for **less than six (6) months**.
☐ I have been doing this behavior for **more than six (6) months**

b-My confidence level for performing this behavior:

___0% confident ___20% confident ___40% confident
 ___60% confident ___80% confident ___100% confident

c-My level of knowledge and understanding for doing this is

___(0) non-existent (none at all) ___(1) extremely low ___(2) very low ___(3) low ___(4) moderate ___(5) high ___(6) very high ___(7) extremely high

d-My level of motivation for actually doing this is

___(0) non-existent (none at all) ___(1) extremely low ___(2) very low ___(3) low ___(4) moderate ___(5) high ___(6) very high ___(7) extremely high

3-For the behavior of *talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula*

a-

___I am not thinking of doing this behavior at all.
 ___I am thinking about doing this behavior.
 ___I am preparing to do this behavior.
 ___I have been doing this behavior for **less than six (6) months**.
 ___I have been doing this behavior for **more than six (6) months**

b-My confidence level for performing this behavior:

___0% confident ___20% confident ___40% confident
 ___60% confident ___80% confident ___100% confident

c-My level of knowledge and understanding for doing this is

___(0) non-existent (none at all) ___(1) extremely low ___(2) very low ___(3) low ___(4) moderate ___(5) high ___(6) very high ___(7) extremely high

d-My level of motivation for actually doing this is

___(0) non-existent (none at all) ___(1) extremely low ___(2) very low ___(2) low ___(3) moderate ___(4) high ___(5) very high ___(6) extremely high

4-For the behavior of *talking to expectant and new mothers about the risk of becoming dependent on expensive commercial infant formula, losing the ability to produce breastmilk, and the increased risk of illness and death for their infant)*

a-

___I am not thinking of doing this behavior at all.
 ___I am thinking about doing this behavior.
 ___I am preparing to do this behavior.

_____ I have been doing this behavior for **less than six (6) months.**

_____ I have been doing this behavior for **more than six (6) months**

b-My confidence level for performing this behavior:

_____ 0% confident

_____ 20% confident

_____ 40% confident

_____ 60% confident

_____ 80% confident

_____ 100% confident

c-My level of knowledge and understanding for doing this is

___(0) non-existent (none at all) ___(1) extremely low ___(2) very low ___(3) low ___(4) moderate ___(5) high ___(6) very high ___(7) extremely high

d-My level of motivation for actually doing this is

___(0) non-existent (none at all) ___(1) extremely low ___(2) very low ___(3) low ___(4) moderate ___(5) high ___(6) very high ___(7) extremely high

END OF PRE-TRAINING SURVEY

PARTICIPATION IN THE 7-HOUR CONTINUING EDUCATION TRAINING MODULE

Appendix G

Study Survey-B

THE STUDY SURVEY - B

Teachers College, Columbia University
IRB PROTOCOL # 19-129

B-AFTER THE TRAINING
THE COUNTER-MARKETING COUNTINUING EDUCATION
POST-TRAINING SURVEY

PART I-B: ENTER YOUR PERSONAL CODE—AFTER-TRAINING (EYPC-AT-4)

For purposes of linking your pre-training and post-training survey responses, please answer the following confidential questions in a manner that you WILL REMEMBER each and every time.

- 1) The last two digits of my phone number:____(e.g. 27)
- 2) The last two digits of my spouse/best friend's phone number ____ (e.g. 79)
- 3) The last two digits of the year I graduated from Elementary School (SD)____(e.g. 89)
- 4) The last two digits of the year I graduated from High School (SMA) __ (e.g. 00)

[For example, your personal code would be **27-79-89-00**—and if you answer these four questions in the exact same manner each time, then we will be able to match your pre-training and post-training surveys]

PART III-B: AFTER THE TRAINING: RATING OF MY KNOWLEDGE (AT-RMK-4)

I rate my level of knowledge about counter-marketing, specifically, what it is, what it involves, and about counter-marketing campaigns as:

Very Poor	Poor	Fair	Good	Very Good	Excellent
1	2	3	4	5	6

PART IV-B: AFTER THE TRAINING: STAGE OF CHANGE, SELF-EFFICACY, KNOWLEDGE AND MOTIVATION LEVELS (AT-SOC-SE-K-M-L-4)

Read about each behavior, and then check what applies to you from the options below.

1-For the behavior of *talking to expectant and new mothers about the reasons to breastfeed their infant (i.e. exclusive and optimal breastfeeding), and all the benefits for their infant*

a-

- ☐ I am not thinking of doing this behavior at all.
☐ I am thinking about doing this behavior.
☐ I am preparing to do this behavior.
☐ I have been doing this behavior for **less than six (6) months**.
☐ I have been doing this behavior for **more than six (6) months**

b-My confidence level for performing this behavior:

- ☐ 0% confident ☐ 20% confident ☐ 40% confident
☐ 60% confident ☐ 80% confident ☐ 100% confident

c-My level of knowledge and understanding for doing this is

- ☐ (0) non-existent (none at all) ☐ (1) extremely low ☐ (2) very low ☐ (3) low ☐ (4) moderate ☐ (5) high ☐ (6) very high ☐ (7) extremely high

d-My level of motivation for actually doing this is

- ☐ (0) non-existent (none at all) ☐ (1) extremely low ☐ (2) very low ☐ (3) low ☐ (4) moderate ☐ (5) high ☐ (6) very high ☐ (7) extremely high
-

2-For the behavior of *talking to expectant and new mothers about corporations' inappropriate and aggressive marketing of commercial infant formula and breast milk substitutes*

a-

- ☐ I am not thinking of doing this behavior at all.
☐ I am thinking about doing this behavior.
☐ I am preparing to do this behavior.
☐ I have been doing this behavior for **less than six (6) months**.
☐ I have been doing this behavior for **more than six (6) months**

b-My confidence level for performing this behavior:

- ☐ 0% confident ☐ 20% confident ☐ 40% confident
☐ 60% confident ☐ 80% confident ☐ 100% confident

c-My level of knowledge and understanding for doing this is

- ☐ (0) non-existent (none at all) ☐ (1) extremely low ☐ (2) very low ☐ (3) low ☐ (4) moderate ☐ (5) high ☐ (6) very high ☐ (7) extremely high

d-My level of motivation for actually doing this is
 __ (0) non-existent (none at all) __ (1) extremely low __ (2) very low __ (3) low __ (4) moderate __ (5) high __ (6) very high __ (7) extremely high

3-For the behavior of *talking to expectant and new mothers about how the aggressive marketing of commercial infant formula and other breast milk substitutes includes billboards with perfect-looking, attractive babies (e.g. with white skin) – so women want to use the formula*

a-

____ I am not thinking of doing this behavior at all.
 ____ I am thinking about doing this behavior.
 ____ I am preparing to do this behavior.
 ____ I have been doing this behavior for **less than six (6) months**.
 ____ I have been doing this behavior for **more than six (6) months**

b-My confidence level for performing this behavior:

____ 0% confident ____ 20% confident ____ 40% confident
 ____ 60% confident ____ 80% confident ____ 100% confident

c-My level of knowledge and understanding for doing this is
 __ (0) non-existent (none at all) __ (1) extremely low __ (2) very low __ (3) low __ (4) moderate __ (5) high __ (6) very high __ (7) extremely high

d-My level of motivation for actually doing this is
 __ (0) non-existent (none at all) __ (1) extremely low __ (2) very low __ (3) low __ (4) moderate __ (5) high __ (6) very high __ (7) extremely high

4-For the behavior of *talking to expectant and new mothers about the risk of becoming dependent on expensive formula, losing the ability to produce breast milk, and the increased risk of illness and death for their infant*

a-

____ I am not thinking of doing this behavior at all.
 ____ I am thinking about doing this behavior.
 ____ I am preparing to do this behavior.
 ____ I have been doing this behavior for **less than six (6) months**.
 ____ I have been doing this behavior for **more than six (6) months**

b-My confidence level for performing this behavior:

____ 0% confident ____ 20% confident ____ 40% confident
 ____ 60% confident ____ 80% confident ____ 100% confident

c-My level of knowledge and understanding for doing this is

___(0) non-existent (none at all) ___(1) extremely low ___(2) very low ___(3) low ___(4) moderate ___(5) high ___(6) very high ___(7) extremely high

d-My level of motivation for actually doing this is

___(0) non-existent (none at all) ___(1) extremely low ___(2) very low ___(3) low ___(4) moderate ___(5) high ___(6) very high ___(7) extremely high

**PART V-B: SELF-RATING FOR PARTICIPATING IN THE CAMPAIGN—
STAGE OF CHANGE, SELF-EFFICACY, KNOWLEDGE AND MOTIVATION
LEVELS (SR-PC-SOC-SE-K-M-L-1)**

Regarding the new counter-marketing campaign—*A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation*

1-For the behavior of your **taking an active role in the campaign**

a-

___ I am not thinking of doing this behavior at all.

___ I am thinking about doing this behavior.

___ I am preparing to do this behavior.

___ I have been doing this behavior for **less than six (6) months**.

___ I have been doing this behavior for **more than six (6) months**

b-My confidence level for performing this behavior:

___ 0% confident

___ 20% confident

___ 40% confident

___ 60% confident

___ 80% confident

___ 100% confident

c-My level of knowledge and understanding for doing this is

___(0) non-existent (none at all) ___(1) extremely low ___(2) very low ___(3) low ___(4) moderate ___(5) high ___(6) very high ___(7) extremely high

d-My level of motivation for actually doing this is

___(0) non-existent (none at all) ___(1) extremely low ___(2) very low ___(3) low ___(4) moderate ___(5) high ___(6) very high ___(7) extremely high

**PART VI-B: DOSE OF EXPOSURE AND RATING THE CONTINUING
EDUCATION MODULE (DOE-R-CEM-4)**

(Dose of Exposure)

1-I was present for

___ All of the training session

___ Most of the training session

___ Some of the training session

___ None of the training session

(Training Ratings)

2-I rate the training session as

Very Poor	Poor	Fair	Good	Very Good	Excellent
1	2	3	4	5	6

3-I rate the training materials as

Very Poor	Poor	Fair	Good	Very Good	Excellent
1	2	3	4	5	6

4-I rate the trainer who led the training session as

Very Poor	Poor	Fair	Good	Very Good	Excellent
1	2	3	4	5	6

PART VI-B: OPEN SHARING (OS-4)

Please answer the following questions in the space provided. (You may continue on to the back of the page if you need more space)

1-What are the strengths and weaknesses of the training.

2-How could it be improved?

3-What was the impact of the training on you?

4-What other recommendations or comments do you have to share?

END OF SURVEY

Appendix H

Training Materials

Link to Training book in English: <https://tinyurl.com/BREASTFEEDING-OR-FORMULA-ebook>.

Link to Training book in Bahasa Indonesia: <https://tinyurl.com/Wallace-dan-Hidayana-2019>.

Appendix I

About the Local Sponsors of the Study

Partners in Launching the Campaign and Recruiting Participants

The following are partners who supported *A Campaign to Expose the Truth About Becoming Dependent on Commercial Formula and Breastfeeding Cessation* in Indonesia, while also encouraging study participants to attend the continuing education training for breastfeeding educators/counselors.

The Indonesia Maternal and Child Health Advocacy Group. The Indonesia Maternal and Child Health Advocacy Group is a civil society coalition that focuses on improving the health status of Indonesian mothers, young women, infants, and young children. Initially, the group consisted of pediatricians, midwives, breastfeeding counselors, and breastfeeding educators. Currently, the group comprises more than 25 organizations and more than 50 influential individuals throughout the country. The researcher is one of the co-initiators of the group. In 2008, the researcher led meetings between a group of the maternal and child health organizations' leaders, and the Minister of Health, which resulted in the establishment of the group at the end of 2009.

In early 2010, the Ministry of Health and the Ministry of Human Development and Cultural Affairs concluded that such initiatives should be included in national networks for achieving the Millennium Development Goals (MDGs). Therefore, in April 2010, the group was officially launched by the Indonesian Minister of Human Development and Cultural Affairs (<http://www.neraca.co.id/article/40783/kemenkes->

resmikan-rumah-menyusi). The Minister appointed the group as part of civil society's efforts to contribute to reaching the MDGs, which are currently succeeded by the Sustainable Development Goals (SDGs). To date, the group has implemented numerous programs, including public advocacy and education on maternal, child, and newborn health, reproductive health, national and district health budgeting systems, community nutrition, and infectious diseases (<http://www.gkia.org/index.php>).

Moreover, responding to the two emergency events in 2018, the July earthquake in Lombok Island and the September earthquake and tsunami in Southeast Sulawesi province, the group deployed breastfeeding educators and counselors to both emergency areas; counseling and education were provided for mothers to successfully breastfeed in emergency situations.

The Indonesian Breastfeeding Counselors' Association. The Indonesian Breastfeeding Counselors' Association (IBCA) is a breastfeeding/lactation counselor-based organization that aims to increase the knowledge and competency of Indonesian breastfeeding counselors. The association also provides continued training on infant and young child feeding. More specifically, the association aims to provide technical breastfeeding aids for mothers struggling with breastfeeding. (<https://konselormenyusui.org>)

In 2011 the Ministry of Health launched and included the IBCA as the government partner in its efforts to increase the number of breastfeeding rates. The researcher was one of the founders of the association. She co-initiated and prepared several consultation meetings with the Ministry of Health in order to assure the ministry

team on the important roles that breastfeeding counselors can play to improve breastfeeding outcomes. Since then, the IBCA has provided breastfeeding counseling to mothers at the community level, at some local health facilities, and in some government office buildings. Further, in an emergency situation, in part of its work with the Ministry of Health, the association deploys a number of counselors to provide breastfeeding counseling and education to mothers with infants and young children in emergency areas.

The Indonesian Breastfeeding Mothers' Association. The Indonesian Breastfeeding Mothers' Association (IBMA) is a community-based peer support group for mothers, aimed at raising awareness of the importance of breastfeeding in Indonesia. The association also intends to contribute to the government of Indonesia's efforts to increase the optimal breastfeeding status across the country. The members of the association consist of mothers, breastfeeding counselors, and breastfeeding educators. IBMA was established in 2007 by a group of young mothers in Jakarta, the capital city of Indonesia, and currently has branches in 15 provinces. Not long after its establishment, the association became one of the leading national groups providing breastfeeding education to communities, and offering free personal counseling sessions to parents and parents-to-be. At the sub-district level, the association works closely with religious leaders to incorporate advice on breastfeeding into worship.

Moreover, the association plays an important role in numerous national breastfeeding advocacy efforts. In early 2008, along with other maternal and child health advocacy groups, the association was heavily involved in the amendment of the National Health Law. At the same time, when the researcher was appointed as a program manager

of a breastfeeding campaign at Save the Children UK's Indonesia office, she was also actively involved in the same advocacy. On behalf of the researcher's organization, she led the sub-national breastfeeding advocacy group, which involved the IBMA and other organizations. The researcher also supervised the association in implementing its policy research and advocacy programs. As a result, a recommendation on exclusive breastfeeding for the first six months of life was accommodated into the Law in 2009.